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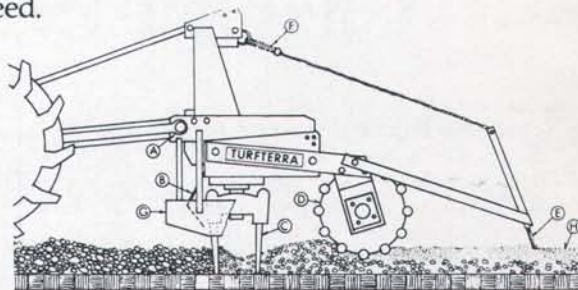


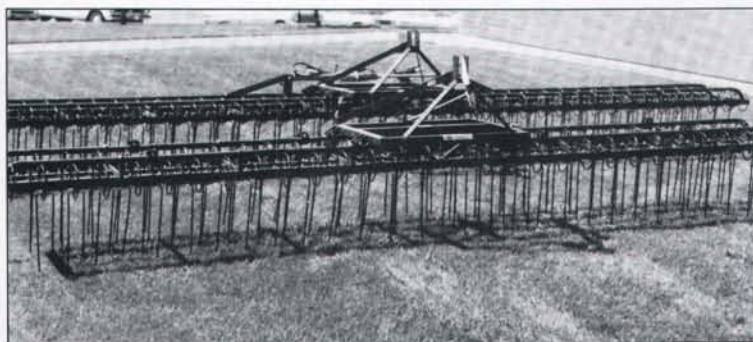
ILLUSTRATION DESCRIPTION

- A. 3PT CAT I & II**
- B. ROCK GUARD** - levels surface and protects rotor.
- C. COUNTER ROTATING TINES** - pulverizes soil and leaves firm, smooth surface below tine depth.
- D. CRUMBLER BAR** - firms worked soil to proper compaction.
- E. BRUSH** - smooths top surface to perfection.
- F. SPRING ADJUSTMENT** - to set ideal tension on brush.
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naments in August. The baseball season ends in early October with the Aggies' 30-day fall practice. All these events are played on the Tifway bermudagrass.

In a typical season, Olsen Field hosts nearly 60 games and all the practices for the university. "I'd love to have a practice facility for baseball," says Goertz. When he

is not taking care of the stadium, Goertz is helping Ray with the girls softball field, the practice football field and the track complex. The girls have been national fast-pitch softball champions for three out of the past eight years.

Kyle Field, the university's football stadium, is artificial turf. When the baseball team needs to practice on artificial turf, it borrows the football stadium for a few days.

A \$7-million indoor practice facility will be constructed within the next five years.

But Goertz has grown up with Olsen Field and natural turf. "I've been lucky to start out on a new field and stay with it," he says. Experience has taught him how to adjust the Toro hydraulic irrigation system during the season for both ryegrass and bermudagrass. He may change the irrigation schedule for the 23 stations from week to week.

Each station has an average of three heads that run about 20 minutes every three days. There are five quick couplers on the field to which hoses are connected for wetting down the infield dirt, bullpens and warning tracks. The first is behind the pitcher's mound. Two more are located next to the bullpens and the final two are located in the outfield. "If we had a power failure in the middle of a hot spell, we could still irrigate the field with the quick couplers," states Goertz.

Beside saline water, Goertz has other concerns that require extra attention. Purple nutsedge invades the bermudagrass in the summer. Applications of MSMA kill the existing nutsedge foliage but not the nut below the surface. This summer Goertz will try a new product called Image that controls the nut as well as the foliage. Three or four times every year the warning tracks are sprayed with Roundup to kill any emerging weeds.

Annual bluegrass is a problem in the overseeded field. He also had an outbreak of brown patch and dollar spot two years ago shortly after overseeding. This year he plans to apply Rubigan, a fungicide that controls both diseases in addition to having a suppressing effect on annual bluegrass. "It helps to have some of the leading agronomists in the country on campus," says Goertz.

While Olsen Field does have a minor mole cricket infestation, Goertz has had no problem keeping it under control. It's the fire ants that drive him crazy. They've stayed off the field so far, but keeping them off is a constant battle. The perimeter of the stadium is treated with fire ant baits. At the first sign of a mound, it is knocked down and sprayed with a product called Eliminator. "You can't let them get a foothold," Goertz warns.

With his degree completed, he remains at Olsen Field. He travels on road trips with the Aggies when he can, to see other fields around the country. "I'm not saying that just because somebody else does something one way, that it is the right way to do it, but rather that maybe you might take that idea and develop it to suit your field," says Goertz. "Many of the things that we do here at Texas A&M we have picked up from other people."

Only one out his four student managers is majoring in turf. His name is Chet Bunch and his goal in life is to become a golf course superintendent. Another is studying to be a dentist. If the right opportunity came along, maybe they too would alter the course of their careers for the lure of the diamond.

Channel Drains

A revolution in turf and landscape drainage is quietly taking place. For lack of a better name, we'll call the products causing this revolution channel drains. They use a variety of different products to achieve a similar result: a deep, narrow channel in the soil which carries water away from a site.

The channel shape of the drains relieves some of the problems with achieving an exact slope to make water flow properly. For example, a four-inch pipe buried beneath the surface has only a four-inch tolerance in slope to make sure water will flow properly. Water and silt will collect in any low spot in the drain line. In agriculture, and in large sports turf installations, laser-guided trenchers use expensive instrumentation to provide the precise slope necessary for the drain.

The problem is that many facilities with poor drainage are reluctant to install drainpipe, for fear of the high cost of installation or problems with slope if they do the work themselves. Two solutions were devised to help open up in-house installation to a greater number of institutions and to contractors who do not have the sophisticated equipment.

The first was to install a channel of rock, pea gravel or sand in the trench above the pipe to increase the tolerance of the slope. This also improved the downward percolation of water to the pipe and assisted the horizontal movement of water above the pipe. This type of installation is termed a French drain.

British sports turf contractors took the channel concept one step further. They utilized a series of vibrating blades to open up narrow slits in the top foot of soccer pitches, inserted a small perforated pipe, and then backfilled the slits with sand to the surface. Water flowed in the sand channels much more effectively than through heavy soils.

The advantage of this system, called the Cambridge System, was minimal surface disturbance. Adding a layer of sand to the surface of the area being drained increased water movement to the sand slits in what is termed a "wicking action."

The next problem was preventing waterborne silt from plugging both the drainpipe and the rock or sand above the pipe. Geotextile fabrics were wrapped around the pipe,



Wrapped channel drain is easily installed. Photo courtesy: Burcan Industries.

and in some cases the rock as well, to keep silt out of the space available for the water.

In 1969, tests at the University of Connecticut in Storrs, showed that a waffle-like piece of plastic wrapped in filter fabric, could provide a tall, open space for water to travel beneath the surface. Later, an open geomatrix was used by one manufacturer as a substitute for the plastic core. Once water passes through the filter fabric, it flows along the core or matrix, even with variations in the overall downward grade. By increasing the height of the thin core, the tolerance to slope could be made greater than with conventional drainpipe. Furthermore, the actual space available to water flow could be greater than with rocks or sand.

The advantage of the prefabricated drainage channels was that they could be installed with a small walk-behind trencher cutting a narrow trench. If the sod above the trenches was cut and removed before trenching, and replaced after the trenches were backfilled, surface disturbance was minimized. The small trencher also removed less dirt that had to be transported off the site.

Some manufacturers adapted the channel concept to simplify installation of solid drainpipe connected to surfaces grates and catch basins. The tall, narrow channels benefited from a greater tolerance of slope just as the perforated versions did.

While a variety of methods exist today to take advantage of the benefits of channels over pipes, they all provide improved long-term drainage and simplify installation. As a result, correcting drainage problems is practical to a wider number of businesses and institutions.

EXPANSION NEARS AS LEAGUES JOIN FORCES

When Peter Ueberroth took over as commissioner of baseball, he discouraged talk of expansion until more teams were financially fit. During the recent winter meetings in Dallas, TX, the commissioner painted a brighter financial picture for Major League Baseball and said prospects for expansion are improving. With his encouragement, the National League and the American League have merged their expansion committees.

Still, cities such as Tampa, Denver, Phoenix, Buffalo, Miami and Washington may have to wait two to four more years for their teams. A. Bart Giamatti, president of the National League, said Major League Baseball must first settle contracts with the television networks and the Players Association (both contracts expire in 1989) before expansion can be seriously considered.

The American League is most anxious to expand to solve its problems with scheduling its 14 teams. Inter-league play has been recommended as a temporary solution. Interest in expansion even peaked in the U.S. Senate, with Sen. Tim Worth (D-CO) creating a special Senate task force on expanding the Major League.

The current rumor on expansion is that there will be at least two new teams playing professional baseball by 1992.

U.S. STADIUMS INSPECTED FOR WORLD CUP SOCCER

A delegation from the Federated Internationale de Football Association (FIFA) in Switzerland is inspecting 18 different stadiums across the United States this month to see if they are suited for World Cup Soccer 1994. The U.S. is competing with Brazil, Morocco and Chile for the international event to be held in June and July 1994.

A 500-page proposal for the event was submitted last fall by World Cup Soccer 1994, an organization of American businessmen and businesses hoping to bring the event to this country for the first time. James Trecker, press officer for the group, said 12 stadiums and six backup stadiums have all agreed to meet FIFA requirements. FIFA will only play on natural turf fields of full, regulation size.

The 18 stadiums are divided into four regions. There are five stadiums in the Northeast, including J.F.K. Stadium and Franklin Field in Philadelphia, PA; R.F.K. Stadium in Washington, DC; Palmer Stadium at Princeton University in Princeton, NJ; and the Navy Marine Corps Stadium in Annapolis, MD.

Florida was the state with the most stadiums—four. They include the Orange Bowl and Joe Robbie Stadium in Miami, Tampa Stadium in Tampa, and the Citrus Bowl in Orlando.

Midwest matches would be held at any of four stadiums, including Arrowhead Stadium in Kansas City, MO; the Cotton Bowl in Dallas, TX; the Soldier Field in Chicago, IL; and a stadium to be constructed outside of Minneapolis, MN.

Western matches will be played at the Rose Bowl in Pasadena, CA; the Los Angeles Coliseum, Huskey Stadium at the University of Washington in Seattle, Parker Stadium at Oregon State University in Corvallis, or the Sam Boyd Silver Bowl in Las Vegas, NV.

Chip Toma, groundskeeper of Arrowhead Stadium, said the Astroturf at the stadium

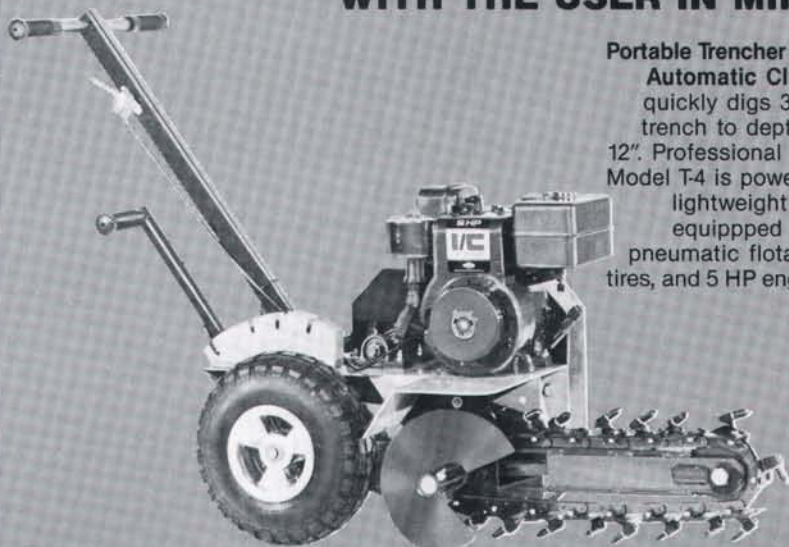
will be covered with several feet of soil and sodded for World Cup Soccer. "The biggest problem isn't putting natural turf over an artificial field," said Toma, "it's making stadium fields wide enough for international soccer regulations." Only three fields, the Los Angeles Coliseum, the Rose Bowl, and Joe Robbie Stadium, are wide enough for international soccer at the present time. The field must be 80 yards wide and 120 yards long.

The FIFA delegation will make its final decision by this June. Brazil hosted the matches in 1950 and Chile did in 1962. Morocco, like the U.S., has never hosted World Cup Soccer.

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Postemergence Weed Control: Helping Turf On The Rebound



Dallisgrass. Photo courtesy: Max E. Badgley.

To a sports turf manager, weeds in a new or renovated turf area are like the first dent in a new car. After all the time and work spent to obtain a flawless product, suddenly the glow of achievement fades into the sobering prospect of making payments for the next few years for something that isn't as special as it was the day it was new.

You can't keep a new car in the garage all the time and you can't keep athletes off sports turf. They are both built to be used for important purposes, and only regular maintenance can keep them looking and performing like new. The day you stop maintaining turf is the day the weeds move in. Without weed control, a field or golf course that could last forever falls apart in just one season. To make another automotive analogy, we aren't talking about a little old lady's car in sports turf, we are talking about a commercial vehicle with heavy use under tough operating conditions. The turf is gouged and trampled, mowed low, aerated, verticut, played on when injured or dormant, and grows in soil that is often compacted. Yet, with proper care and use, it rebounds within days for its next event.

Particular weeds find the worn patches of high-use turf suited to their own establishment and growth. They thrive on compacted soil where the turfgrass has been opened up or thinned with play. Weed seed lies dormant in the soil waiting for a golf club, cleats or elbow to clear its path to the surface for germination and growth. Frequently, when temperature and moisture conditions are optimum for weed seed germination, use of the playing surface is at its greatest.

Extension turf specialists will tell you the best defense against weeds is a dense, healthy turfgrass. All plants compete for space. Once established, the healthiest and most aggressive plant wins the battle.

A significant challenge to the sports turf manager occurs when a sports season takes place while the primary turfgrass is either dormant or under stress from heat or drought. For northern climates, this takes place during the late fall and winter, when Kentucky bluegrass, ryegrass, tall fescue and bentgrass grow very slowly if at all.

High summer temperatures and drought can also hurt the competitiveness of cool-season turf in the North or Central (transi-



The grass sandbur. Photo courtesy: Max Badgley.

tion zone) regions. In the South, the warm-season grasses enter dormancy beginning in October and do not become aggressive again until April or May.

For these reasons, warm-season grasses in the South are frequently overseeded in the fall. Sports turf managers in the transition zone and parts of the upper South are utilizing cold-tolerant bermudagrasses, such as Midiron, or turf-type tall fescues to reduce weed invasion during the summer. In all parts of the country, irrigation systems are a vital part of summer weed control since even a two-week dry spell can favor the encroachment of weeds.

Perennial ryegrass has become a major factor in maintaining cover and turf dominance over weeds in much of the country. It is the primary grass for winter overseeding in the South. Because it germinates so rapidly, it is also used heavily in other parts of the country to fill in thin or bare spots on golf tees, football fields and soccer fields. Wear tests in England and at various universities across the United States have shown that certain perennial ryegrasses stand up to sports extremely well once established.

Sports turf managers and golf course superintendents who use perennial ryegrass to overseed warm-season grasses should select varieties with low heat tolerance. Ryegrass can be considered a weed in warm-season grasses if it competes too strongly with bermudagrass or other warm-season grasses as they come out of dormancy in the spring. However, late spring golf tournaments, baseball and soccer seasons have forced some sports turf managers to maintain the ryegrass through May.

Since overseeding and reseeding are so important to maintaining aggressive turf, sports turf managers must either time applications of preemergence herbicides very carefully or depend completely upon postemergence herbicides for weed control. See the story in the February issue on "Scheduling Preemergence Weed Control."

The primary times to apply preemergence applications are in the spring and late summer. Unfortunately, these are also the best times for sports turf managers to fit overseeding and reseeding into their work schedules. All preemergence herbicides, except siduron (Tupersan), will affect turf seed germination.

If *Poa annua*, annual bluegrass, is not a major problem, weed control specialists suggest sports turf managers forgo fall applications of preemergence herbicides and to do as much spring renovation and reseeding in the fall instead of the spring. Then they can utilize preemergence herbicides in the spring, when weed seed germination is most severe.

Renovation and overseeding common bermudagrass fields and fairways in the late spring should also be scheduled after preemergence herbicides in the soil have been exhausted. In most cases, herbicide residues in the soil are below control levels after 30 to 60 days. Always check the label; the length of weed control varies according to rates and products used.

Even with preemergence applications, surface damage caused by sports activity can create openings in the herbicide barrier in the soil. Furthermore, some major weeds continue to germinate through the spring and summer, long after their peak germination period in late winter or spring. As a result, postemergence herbicides remain very important. Fortunately, the types of weeds that commonly invade sports turf can be narrowed down to a few by extension turf specialists. They can recommend effective control measures for nearly all of the primary weeds.

A convenient way to look at weeds also exists. All plants can be divided into two groups, annual or perennial. Annual weeds live for one year and reproduce by seed. Examples of annual weeds are annual bluegrass, crabgrass, knotweed, henbit, fox-

continued on page 26



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Postemergence Weed Control

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tail, prostrate spurge, henbit and lamb-squarters. Each year these plants flower and produce seed for the next generation. This seed falls to the ground, where it may lie dormant for months or even years.

Perennial weeds live for more than one year (biennials live for two years) and reproduce both by seed and vegetatively. Vegetative reproduction is growth of new plants from parts of old plants, such as roots, stolons, rhizomes, bulbs and tubers. Examples of perennial weeds are goosegrass, nutsedge, dandelion, dallisgrass, clover, chickweed, wild garlic, oxalis, Virginia but-

tonweed, yellow wood sorrel, and quackgrass.

While preemergence weed control can prevent seed in the soil from germinating, postemergence weed control can kill the weed before it produces more seed. By sterilizing soil prior to planting, weed seed and reproductive plant parts in the soil can be destroyed. Nature eventually restores the bank of weed seed in the soil with seed blown onto sports turf from adjacent sites, deposited by birds, or tracked in on shoes.

Perennial weeds can invade an area as seed first, then get a foothold by spreading vegetatively. Only recently have new herbicides been developed that can control the

vegetative structures of some major perennial weeds.

For control purposes, weeds are further distinguished as either broadleaf or grassy. Herbicide manufacturers have created products to selectively remove broadleaf weeds and grassy weeds from desirable grasses. The phenoxyes, including 2,4-D, MCPP (mecoprop), and 2,4-DP (dichlorprop), and dicamba (Banvel) have long been used effectively for broadleaf weed control. Triclopyr (Turflon) is relatively recent addition to the line of broadleaf herbicides for turf.

Two-, three- and four-way combinations of these products are available commercially today for broad-spectrum broadleaf weed control. A few examples are Trimec, Trex-San, Weedone DPC, Triamine, Lesco Three-Way and Turflon-D. Generally, these herbicides should not be used soon before or soon after seeding. Bromoxynil (Buctril) is a selective broadleaf herbicide that can be used shortly after seeding.

The arsenates, including MSMA, DSMA and CMA, have been the backbone of grassy weed control for many years. While they control most annual grassy weeds, they are not effective long-term on perennial grassy weeds.

Sports turf managers have been able to use systemic grassy herbicides such as bentazon (Basagran) and imazaquin (Image) to control the vegetative structures of major perennial grassy weeds. Other products which have helped control of grassy weeds are metribuzin (Sencor), fenoxaprop-ethyl (Acclaim), ethofumesate (Prograss) and pronamide (Kerb).

In dormant turf, postemergence non-selective herbicides are being used to control winter weeds which stand out as green patches in otherwise tan turf. TAG and cacodylic acid kill the exposed green foliage of weeds active in the winter. Glyphosate (Roundup) moves inside the weed to kill the foliage and the roots. A second advantage of glyphosate is that it lasts only a few days and is deactivated upon contact with soil. After a week, seed can be planted without any harm from residue. Heavily weed-infested turf areas can be chemically renovated in this manner.

Each region of the country has certain weeds that frequently invade sports turf. The rest of this article is devoted to advice from extension turf specialists and other experts from across the country. They focus on weeds that are found in sports turf in their area during the summer and those that are common in the winter.

For 30 years, Dr. Richard Skogley has dispensed turf advice at the University of Rhode Island in Kingston. The weed that has been causing the most problems lately in ryegrass and Kentucky bluegrass sports fields and fairways is knotweed. The broadleaf weed excels in compacted, worn turf near cart paths, on soccer goal boxes and in the center of football fields.

"What makes knotweed so hard to control," explains Skogley, "is it germinates before crabgrass. Sometimes it's already

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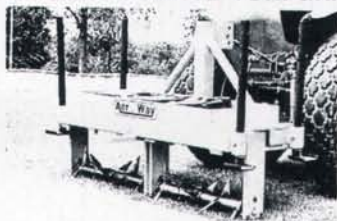
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up and growing before all the snow melts. Preemergence applications timed for crabgrass will miss germinating knotweed. Fortunately, dicamba is very effective on knotweed. The fact that fields have knotweed indicates that more fields are needed to carry the load."

Timing is not the only problem with preemergence weed control for knotweed and crabgrass. Long rainy periods in the spring extend the germination of crabgrass beyond the residual life of the herbicides. Skogley states that applications of three-way herbicides containing dicamba effectively knock out knotweed, crabgrass, dandelion and plantain in sports turf.

However, most schools renovate their fields in the spring instead of the fall. For them, Skogley recommends applying siduron for preemergence weed control and dicamba for the knotweed a few weeks prior to renovation. Once the turf is reseeded, applications of bromoxynil (Buctril) will control young broadleaf weeds without harming the ryegrass or bluegrass.



Yellow nutsedge. Photo courtesy: Larry Leuthold.

According to Skogley, golf course superintendents are using fenoxaprop (Acclaim) in combination with 2,4-D to control annual bluegrass and a variety of other weeds in ryegrass in the late spring. "Poa is a big problem here, largely in areas that are over-irrigated, compacted, poorly drained, and have grasses that aren't adapted to sports in Rhode Island, such as fine fescue and tall fescue," adds Skogley. "More and more superintendents are realizing that poa infestation is related to management. They can see that too much water, too much fertilizer and mowing too close are encouraging the weed." Since poa germinates in the fall, Skogley urges superintendents to fit applications of preemergents around fall renovation.

Prostrate spurge is an annual broadleaf weed that invades some heavily used turf areas in July and August. Skogley says that the preemergence herbicide pendamethalin and the postemergence herbicide dicamba make control of prostrate spurge effective in Rhode Island.

Knotweed is also a problem in Kansas, says Larry Leuthold, at Kansas State University in Manhattan. Phenoxies can kill young knotweed early in the spring, but dicamba is needed later in the season. "Knotweed

is a good indicator of compaction," states Leuthold. "Part of control should be more management to correct compaction." Oryzalin (Surflan) and DCPA (Dacthal) do a good job as preemergents on knotweed if you get them down early enough, he adds.

In addition to crabgrass, foxtail and common broadleaf weeds, Leuthold is especially concerned about grass sandbur and puncture vine. Both form spiny burs in late spring that are painful to players when they fall on the weeds. "You have to control these weeds before the burs form," he says. "Once they form, you can kill the plant, but the burs dry out, get hard and really hurt when you fall on them."

Sports turf managers can control grass sandbur, foxtail and crabgrass together with repeat applications of MSMA or DSMA. In cool-season turf, fenoxaprop (Acclaim) can be combined with preemergence herbicides to control all three weeds. Goosegrass is another grassy weed that is effectively controlled with fenoxaprop. However, fenoxaprop can't be applied to bermudagrass. Trimec-type herbicides will take care of the puncture vine.

Yellow nutsedge is a hard-to-control weed in Kansas sports turf. Applications of MSMA will knock back the foliage but won't kill the reproductive outlets in the soil. Professional

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Clearwater (FL) Phillies
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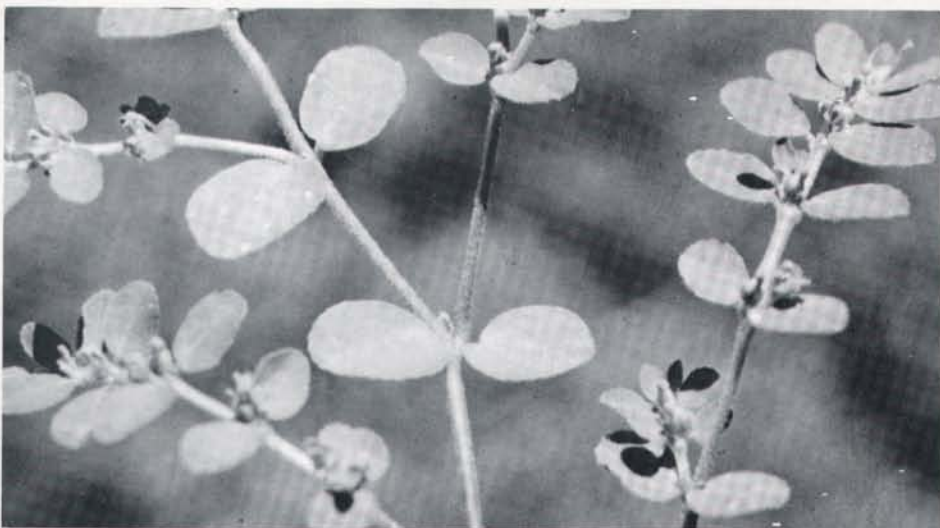
Postemergence Weed Control

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applicators can use the systemic herbicide bentazon (Basagran) to kill the nutlets.

Kansas, being in the transition zone, has a variety of turfgrasses on its fields and golf courses. Leuthold says that while most golf courses have bluegrass/ryegrass fairways, a growing number of courses are experimenting with zoysiagrass. Golfers like the zoysia because it holds the ball upright more than bluegrass. However, the zoysia is slow to establish, fills in divots slowly, and has a long dormant season. Because zoysia is so dense, overseeding with ryegrass is difficult. Glyphosate is used to control winter weeds in both dormant zoysia and bermudagrass in the state.

"Don't assume the turf is dormant," says Leuthold. "Check the undergrowth to make sure the stems and tillers aren't still green." Midiron bermudagrass is a winter hardy bermudagrass developed at Kansas State University with a relatively short winter dormancy. The majority of athletic fields in the state are tall fescue with a trend toward perennial ryegrass. A growing problem is bermudagrass invading cool-season turf, especially turf in full sun. At the present time, the only way to correct the situation is to chemically renovate the invaded area with glyphosate and to reseed. Leuthold points out that water used to apply glyphosate must not be muddy. Even dusty turf will reduce



Prostrate spurge. Photo courtesy: Larry Leuthold.

the effectiveness of the material.

As in Rhode Island, prostrate spurge invades heat- and drought-stressed cool-season turf in Kansas during the summer. Leuthold recommends Trimec-type herbicides for postemergence control of spurge and applications of either pendamethalin or oxadiazon (Ronstar) for preemergence control. An occasional weed in sports turf is wild violet. Leuthold suggests triclopyr plus 2,4-D (Turfalon-D) to control it.

Leuthold's neighbor, Dr. David Minner at

the University of Missouri in Columbia, says many weed problems can be avoided during spring renovation. Nutsedge, carpetweed and goosegrass take advantage of fields opened up for renovation or resodding. "If you try to seed in May, you'll get lots of goosegrass," says Minner. If late spring seeding is unavoidable, he recommends applying siduron (Tupersan) before seeding followed by applications of bromoxynil and/or fenoxaprop.

Bromoxynil controls the broadleaf weeds,

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including knotweed, that emerge, and fenoxaprop will take care of goosegrass, crabgrass, foxtail and some broadleaf weeds in ryegrass or tall fescue turf. Yellow nutsedge control is best accomplished by two applications of bentazon, one in early June and a repeat application later in the summer.

There is no effective preemergence control of dallisgrass, says Minner. For the time being, multiple applications of MSMA must be made where the weed is a problem. Prostrate spurge is a common problem but is controlled effectively with late spring applications of Trimec-type herbicides and pre-emergence herbicides earlier in the year.

"The number one technical problem in the South Central U.S.," reports Dr. Euel Coates at Mississippi State University, is a perennial, subtropical flower called the Virginia buttonweed. The summer weed spreads vegetatively and by seed. So far, ester formulations of combination postemergence herbicides, such as Weedone DPC Ester, Super Trimec and Tri-Ester, will knock the buttonweed back for four weeks to two months. The problem often crops up on tees or when a superintendent widens a green into a collar area. Buttonweed survives short cutting height and thrives on high moisture. Coates says a more effective product is needed to get full control of the weed.

Control of prostrate spurge is improving, says Coates, as sports turf managers start using surfactants with postemergence com-



Knotweed. Photo courtesy: Larry Leuthold.

bination herbicides containing MCPP. Weak turf encourages spurge and yellow wood sorrel, another summer broadleaf weed controlled fairly easily with three-way or two-way herbicides containing both 2,4-D and 2,4-DP.

Summer grassy weeds on Coates' "hit list" are goosegrass, crabgrass, and purple nutsedge. Goosegrass control in warm-season turf is improved by combining MSMA with metribuzin (Sencor) and a surfactant. The application should be repeated five to seven days later.

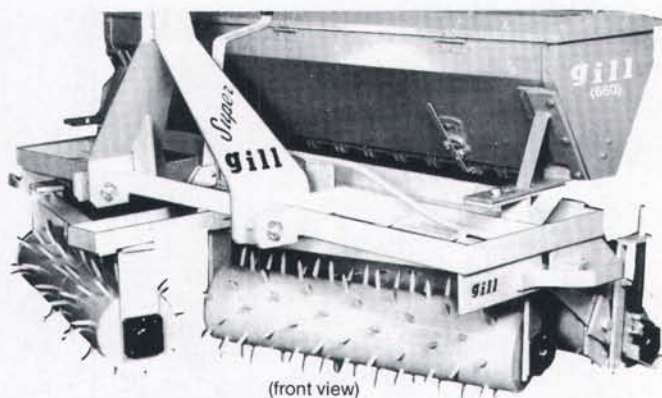
Purple nutsedge was very difficult to control with MSMA, but a new herbicide, imazaquin (Image), has brought it under control. A combination of MSMA and imazaquin will kill both the foliage and the nutlets, as well as some broadleaf weeds, such as sandbur and wild garlic. Imazaquin is not for use on cool-season grasses or bahiagrass.

Coates points out that economical control of some fall and winter germinating weeds in non-overseeded turf is possible with the preemergence herbicide simazine

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(front view)

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Foxtail. Photo courtesy: Larry Leuthold.

Postemergence Weed Control

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(Princep). Split applications of simazine can provide control of poa, henbit, chickweed and some clovers from October through April. He prefers controlling winter weeds in dormant turf this way as opposed to glyphosate.

Dallisgrass control is just as tough in Mississippi as it is in Missouri and Kansas. Sometimes six applications of MSMA are needed during the summer to control the grassy weed.

Sports turf managers in Florida face both

yellow and purple nutsedge, explains Jim Barnes, pesticide specialist for Broward County School District. Barnes and his pesticide applicator, Lanny Dixon, keep all 22 fields on a tight schedule of both preemergence and postemergence herbicide applications and overseeding to keep weeds under control.

"We frequently work weekends to fit weed control into a heavy sports program at the school district," Barnes adds. "We don't spray whole fields all the time. We concentrate on the compacted areas like bench areas and around tracks where weeds have

an advantage over the turf."

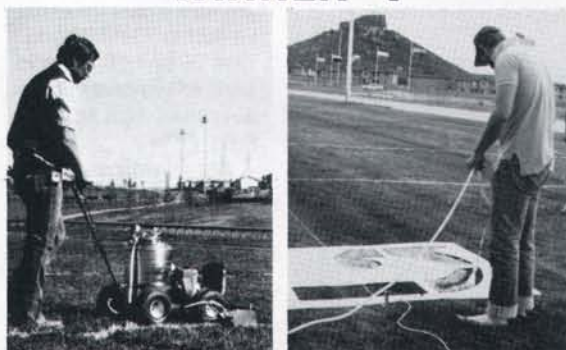
Yellow nutsedge and purple nutsedge control have become more effective since the introduction of bentazon (Basagran) and imazaquin (Image), says Barnes. He uses a combination of MSMA and bentazon for the yellow nutsedge, and adds imazaquin for purple nutsedge. The MSMA kills the foliage while the bentazon and imazaquin take care of the nutlets.

Goosegrass in the fields not overseeded with ryegrass is controlled with applications of metribuzin (Sencor). There is a problem controlling goosegrass on overseeded fields because metribuzin can harm the ryegrass and fenoxaprop can harm the bermudagrass. For those fields he must rely on preemergence herbicides and repeated applications of MSMA to control goosegrass. However, in late winter, the metribuzin can come in handy to both control the goosegrass and phase out the ryegrass.

"This far south, bermudagrass doesn't go completely dormant, it just slows down," says Barnes. For this reason, he stays away from using glyphosate (Roundup) to control winter weeds. He is experimenting with a light rate of glyphosate to take out rye between the end of soccer season in February and the beginning of spring football in late April.

He treats overseeded fields in the winter like a northern sports turf manager would, depending mainly on 2,4-D and dicamba for broadleaf weed control and MSMA for

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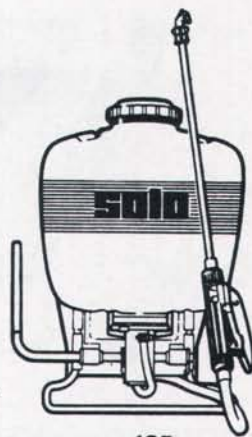
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