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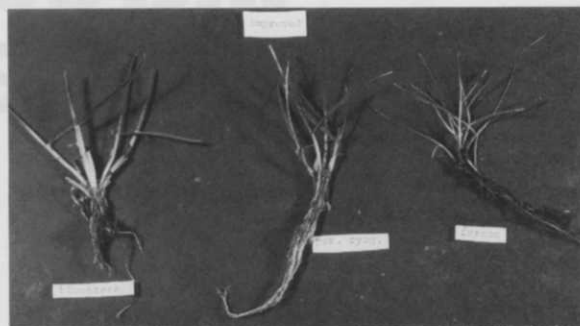
Durable, long-life  
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particles

we may see greater interest in such "turf-type" perennial ryegrasses as are listed in the table. These cultivars are just as attractive as is Kentucky bluegrass, and as was mentioned may be synergistic in preventing disease. In order to obtain adequate bluegrass representation, perennial ryegrass must be limited in the seeding mixture, and the stand managed to retrain it from overwhelming slower bluegrass. Seeding rates for sod generally

"Now that many sod growers are turning to woven netting to hold sod together, so that it may be lifted and sold at an earlier stage of maturity, we may see greater interest in turf type perennial ryegrasses."

run about 80 pounds to the acre. Higher rates could provide greater density more quickly, and especially with larger-seeded cultivars such as perennial ryegrass (with only a fifth as many seeds to the pound as most bluegrasses have) seeding



**Improved bluegrasses** for basic strength, perennial ryegrass for quick establishment, and fine fescue for infertile-shady spots.

rates may require proportionate increase. No material difference in fertilization should be required with differing blends and mixtures, fertilization needs being tied more to soil conditions than to kind of grass or seeding rate.

All in all it does appear as though the sod industry has reached a vantage point from which it can benefit broadly by utilizing the new proprietary cultivars for blends and mixtures suited to various regions. Such sod should have enhanced sales appeal. Cultivars like those listed in the table would certainly seem worth considering.

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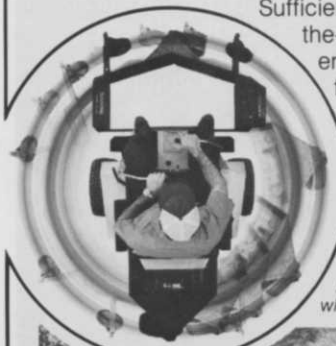
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**TABLE 1 — Examples of modern-day lawn cultivars** that might be used for sod blends and mixtures. They are specially selected or bred for particular uses, tend to be lower-growing, more attractive, and less prone to disease than common lawngrass.

**Bluegrass** (*Poa pratensis*) — Easily cared-for, best sod grass; prefers good soil; modern cultivars tolerate most diseases.

Adelphi — dependable, with all-around merit

Arboretum — persistent low-maintenance "old-fashioned" selection

Baron — vigorous in early years, widely adapted and much used in mixtures

Birka — attractive, persistent under low maintenance

Bonnieblue — moderately competitive, high quality

Enmundi — rates well everywhere, seems compatible

Fylking — non-aggressive beauty in dependable supply

Glade — good general qualities, plus shade tolerance too

Majestic — especially decumbent, not too aggressive and blending well

Merion — long the standard; new hybrid in the offing

Nugget — very dense, endures shade, stronger northward

Plush — broad adaptability with heat and drought tolerance, gaining acclaim

Ram I — good persistence, excellent in blends

Sydsport — robust, vigorous, of good general quality

Touchdown — high-rating, unusually dense under low mowing

**Fescues** (*Festuca rubra*, in variety) — Great in shade, poor soil and low maintenance.

Banner — dense, multi-clone polycross from eastern USA Chewings bloodlines

Ensylva — spreading fescue, low-growing and well-adapted to mixtures; from Holland

Highlight — elegant beauty in a dense Chewings variety; bred in Holland

Koket — enjoys high ratings; a strong performing Chewings type from Holland

Ruby — a spreading variety, much used in bluegrass mixtures; from Holland

**Perennial Ryegrass** (*Lolium perenne*) — Fast-starting and aggressive, attractive cover quickly.

Blazer — one of the newer releases showing much promise

Citation — an excellent "turf type" polycross with muted aggressiveness

Derby — polycross with all the good features typical of modern releases

Diplomat — a complex polycross from Rutgers with excellent credentials

Fiesta — a promising release similar to Blazer

Manhattan — outstanding, hardy, pace-setter for "new breed"

NK-200 — unusual winter-hardiness adds to general attractiveness

Omega — classical elegance combines with good performance

Pennfine — an aggressive polycross from Penn State rating among the best

Regal — a fine new polycross in the image of Derby

Yorktown — an excellent all-purpose polycross of "aristocratic" mein



# DERBY

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- Thrives when close-cut



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# HOW TO PREPARE AND MAINTAIN A BASEBALL FIELD IN THE WEST

Most of the baseball turf that Dr. Kent Kurtz, Cal Poly in Pomona, Calif., sees is hybrid bermuda, some Kentucky bluegrass. "In this immediate area, the Tifgreen bermuda stands up to the close mowing better than the bluegrass because of the higher summer temperatures," he says. "I have seen some pretty decent bluegrass infields in some of the college stadiums."

Not too much baseball is played during the winter months, even in California, but most of the fields are overseeded with either annual or perennial ryegrass, Kentucky bluegrass or a mixture.

The Anaheim stadium is Tifgreen bermuda and the San Diego stadium is Tifway. The Dodger's stadium is Tifgreen, overseeded every winter with a Kentucky bluegrass, perennial ryegrass mixture. Going into the spring period, mowing heights are lowered and the Tifgreen takes over again.

Choosing the right grass is important, Dr. Kurtz stresses. "There are a couple of fields out here that have used tall fescue in the outfield, 100 percent, college fields, that is. Their whole point was to get a grass out there that would slow the ball down.

"There's not any reason why tall fescue could not be used as an outfield turf," he adds. "It's a grass that's really transition zone. You've got to seed it heavy, 12 pounds per thousand, to crowd the clumps close together. If you mow it at about one inch, you should have a pretty adequate field. Out here it'll stay green all year round.

"We've recommended it to some high schools, for the outfield, not the infield, because it doesn't go dormant and performs well under stress and drought and it is fairly wear tolerant.

"Dormant season for most bermudas here is

**Angel Stadium** in Anaheim, Calif. The red crushed-brick basepaths provide contrast with the green field.



late November through about mid-February. It depends on the area. In the desert, it'll be a little longer, maybe the last of October to the first part of March. Near Phoenix, it's October through March.

"At the University of Arizona, they oversee the infield with annual ryegrass. So does Arizona State. They play a lot of winter ball there. They oversee at rates of 8-12 pounds per thousand.

"Mowing heights are not necessarily higher after overseeding because it is done in the winter months when it is cool. There's no reason to go really high, maybe up to about an inch, or an inch and a quarter. There's not much stress, it's cool at night, and doesn't get much over 70 during the day.

"Bluegrass and perennial ryegrass more or less subside during the summer. They don't really die out, they just kind of subside and let the bermuda take over during the hot weather. It's a pretty good marriage. A lot of the bluegrass and ryegrass comes back in the fall.

"Drainage is a problem on baseball fields. Some fields are sloped from the pitchers mound to the edge of the infield and you get a puddle behind second base. On some major league fields that are covered during a rain, the water ends up being dumped behind the infield. That's generally the poorest drained area of the whole field. I would recommend tiling extensively, whether you're starting a new field or improving an old one."

## Soils

"We have soil types ranging from sandy loams to clays. Out here, what we do that they don't in the Midwest and East, is amend the soils with organic materials. It depends on the soil type, but if you have a heavy clay, for example, and are starting from scratch, we would recommend probably somewhere in the area of 6-9 cubic yards of a decomposed bark material, nitrified bark. Worked in with the soil mix itself, the bark will improve percolation and infiltration of the water.

"For the skinned areas, we're using crushed brick, a reddish material. It consists of 70 percent crushed brick (its a baked brick), 28 percent crushed vitrified clay, and 2 percent plaster sand. The sand is added to keep the consistency from tightening up after the material is put down. Otherwise it becomes too hard.

"The Angels in Anaheim Stadium use it. We've used it on our university infields and some of my former students are using it on their fields.

"It's about a four-inch layer of this crushed brick over a base, in many cases clay. The base happens to be decomposed granite material in the Anaheim stadium, but the manager isn't too happy with it. It just happened to be there.

"Starting from scratch, on the average major league infield, it would take about 150 tons. The stuff is running about \$15.50 a ton plus shipping.

"The material is put down in three layers. The skinned area is ripped first, and then a layer of crushed brick is spread and worked in. Another layer is put down and worked in, and then another.

It takes a period of three days or so to finish the job. If you just dump it on the surface it will blow away.

"It requires about 25 tons a year for maintenance, after the initial applications. The material does work very easily. Prior to a game, the material is wetted lightly to keep dust down. Then it is very easy to drag and level off. The red color, from an aesthetic standpoint, provides a very nice contrast with the green turf.

"Over in Tucson, I've seen some basepaths primarily of sand materials, with a little soil. In other areas, they use a material referred to as "river bottom" soil.

### Fertilizing

"Rates should be based on soil test, combined with visual observation. Many superintendents can look and say it either needs it or it doesn't. Hybrid bermuda will take up to 12 pounds of actual N per thousand per year. Whether it needs that much is another question. That would be the high side. On the low side, you're talking about six pounds.

"I generally tell people not to go over one pound of actual N per thousand per application. That's only if they're using soluble products, something like ammonium sulfate or nitrate. If they're

*Continued on page 30*



**University of Arizona** field has skinned areas of a sandy soil composition. Turf is common bermuda, overseeded with annual ryegrass for winter play.

## ADVICE FOR EASTERN FIELD MANAGERS

Dr. Henry Indyk, Rutgers University, Cook College, New Brunswick, New Jersey, offers some advice for baseball field managers in that part of the country.

Dr. Indyk doesn't like a completely skinned ball field. He feels that play is better on turf, there is not a mud situation under wet conditions nor is there dust when the wind is blowing. However, he warns that a poorly maintained turf field can be worse than one completely skinned.

Initial construction specifications are very important. Proper grade needs to be established for water movement off the field, and a good drainage system for water to move through the soil.

He recommends using a 75-80 percent sand mixture in the infield for good water percolation. For the skinned areas, a 60 percent clay, 40 percent sand mixture will provide a firm surface for the players.

The skinned areas should be dragged with a light scarifying action to make the area smooth and to fill in uneven spots from play action. On a field with proper grade and contours, the water will move laterally, rather than ponding.

A good Kentucky bluegrass blend should be

used. The density, quality and texture of the field is critical. A good height of cut for the infield is three-fourths to one inch during the season, with the outfield mowed a bit higher, perhaps.

The mowing height should be raised to one and one-half to two inches after the season to allow the turf to recover. Because the infield is mowed closer, it should be mowed frequently to avoid cutting any excessive length of leaf blade at any one mowing.

Fertilization practices should be similar to that of any well-maintained turf, but care should be taken not to get the turf too lush during the playing season. More wear and disease problems will result.

Dr. Indyk recommends a tall fescue mixture if the field endures a lot of use with low maintenance. A mixture of perhaps 75 percent K-31 tall fescue, with the remaining 25 percent split between Kentucky bluegrass and one of the perennial ryegrasses would provide a durable cover.

One of the big problems, Dr. Indyk feels, as far as general community fields, is that too often there are inadequate provisions for maintenance. A good field needs an organized, well planned, and well budgeted maintenance program.





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The secret of this versatility is the Cushman Pin-Disconnect system. Just put the attachment you need on the Turf-Truckster chassis, secure it with the large pull pins and you're ready to go. No special tools, no trailer to tow, no equipment to load and unload at the site.

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The efficient, low-cost way to quickly aerate greens, tees or other turf areas. The Greensaver drum aerator attaches easily to either Turf-Truckster equipped

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## 3 SPIKERS

The Cushman Quick Spiker attaches to a Turf-Truckster with PTO, hydraulic system and dump kit. You spike a precise 57-inch swath, even over undulating ground, and raise or lower the unit hydraulically. The Trailing Spiker gives you the same width and precise results, but its built-in lifting mechanism is controlled by a pull rope.

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\*Rating for vehicle equipped with 9.50-8 rear tires.





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The Cushman Cyclone Spreader/Seeder mounts on either the Short Box or the Flatbed/Box with a hopper that holds up to 300 pounds. All controls can be operated from the driver's seat, to broadcast over areas up to 40 feet wide, depending on materials.

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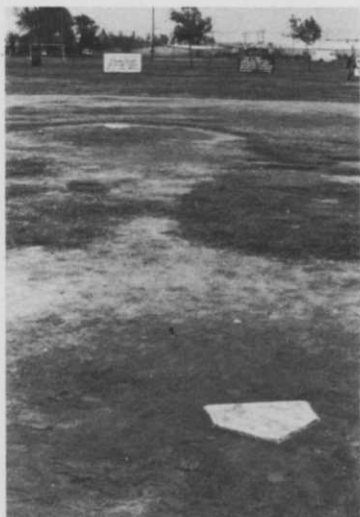
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**Left, Bon View, Calif.**  
little league field before Dr. Kent Kurtz and students began renovation in February, 1978. Below, a student redefines the skinned areas with a sod cutter.



**Left, Dr. Kurtz, Cal Poly Professor,** inspects the job being done by his students. Below, students prepare the skinned areas for crushed brick.



using something like slow release IBDU, there's no reason they can't go up to four pounds per thousand of actual N without burning the turf.

"We tried it on both bluegrass and bermuda and found if we went four pounds, whether it was IBDU or ureaformaldehyde (UF), probably three applications per year, at four pounds would be best. Maybe applications in March, July and November, three applications well spaced throughout the year.

"The problem with slow release products is that when you run into cooler fall weather, you're not going to get much release, because the micro-organisms are not as active. Even though they say the products don't require soil temperature, as far as we're concerned, they do.

"Two applications of a low release product, say in March and July, followed in the fall with a couple of applications of soluble products, would provide a better response. We use a soluble carrier in the winter here, basically because it is readily available."

### Irrigation

"Water availability hasn't been a problem for the last two years. We have more now than we know what to do with.

"A lot of our sports fields are going to the tensiometer method. The tensiometer is hooked into the automatic watering system and the turf is irrigated on the basis of the soil's wetness, or dryness.

"Almost all of the fields are on automatic watering systems. Pretty much Toro and Rainbird. Both companies are local here.

"There's a lot of problems with irrigation, though. You set your time clocks, but that doesn't mean that you can forget it. Irrigation needs a lot of coordination, between both players, coaches and the entity that owns or operates the field.

"Sometimes, with soils like the heavy clays, on the automatic system, you can repeat cycles. Put a little bit on, come back in an hour or two, put a little bit more on and then a few more hours come back with another shot. The clay will absorb moisture slowly, but it will take it in. Otherwise, water runs off and doesn't do much good."

### Aerification

"I would say that this is a very important aspect of baseball fields, because you don't want them to become too hard. They are subject to compaction.

"The turf areas of the field should be aerified at least twice a year, maybe four times a year for the infield. The plugs can be dragged in, if its a sandy type of soil, and the debris is picked up. If it is a poor soil, remove the plugs and then topdress with a material that's porous and will get into the aerification holes and keep the field open for drainage. It's particularly important in the infield.

"You want to keep the field as level, smooth and uniform as possible. The major leagues have got to do this, they're dealing with a lot of money.

If they have a concert or something in the Angel's Stadium, they meticulously comb the field five or six times, looking for glass, can pop-tops, anything that would jeopardize a million dollar player. They just cannot afford to have an accident through carelessness."

*Continued on page 32*