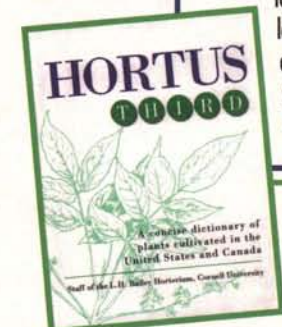
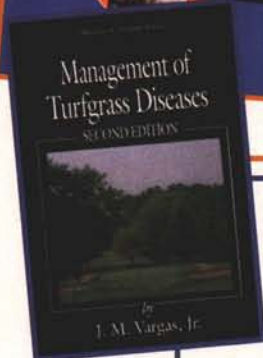
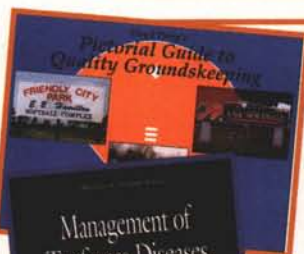


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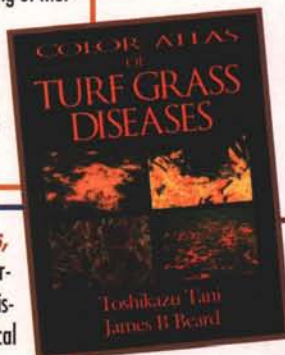
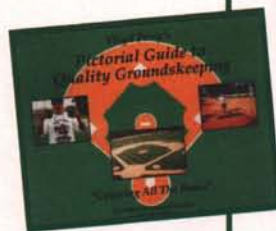
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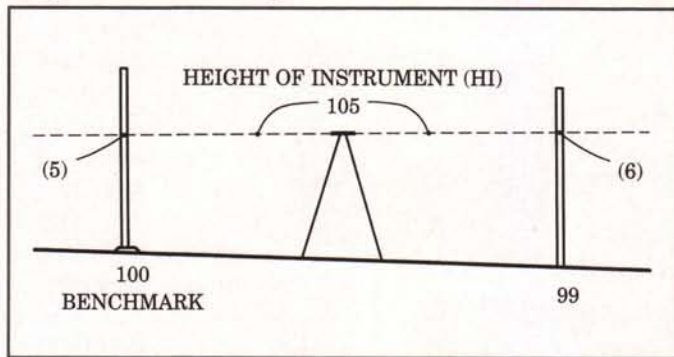
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consistent. This fixed reference point can be anything from a catch basin lid to a curb, or any other stationary structure. Once a benchmark has been established, the surveying instrument can be moved to another location, and it can be removed and reset on another day.

Assign an elevation to the benchmark. Set up and level your instrument somewhere near the center of the area to be surveyed and place the elevation rod on the benchmark. Take a reading and add the result to the bench-

Figure 6. Establishing an elevation from a benchmark



mark. The sum of the two figures represents the height of the instrument (HI). Subtract each subsequent rod reading from the HI to obtain the elevation at each point.

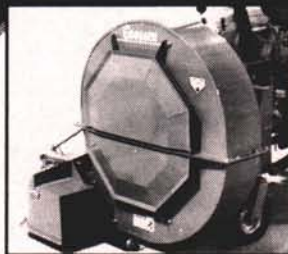
Figure 6 provides an example. The benchmark is 100. If the measurement at the benchmark reads five feet, the HI is 105. If the first point to be surveyed measures six feet, subtract that reading from the HI to yield its elevation: (105 - 6 = 99). The elevation at that point is one foot lower than the benchmark.

Each day of surveying, and whenever the instrument is moved, you must find the HI for that instrument location. Continue subtracting readings from the HI to yield elevations at each point on the field.

Obviously, surveying is a complicated field with many considerations and nuances. However, using the simplest pieces of surveying equipment and the basic techniques described here, sports field managers can help identify and fix many of the drainage and contouring problems that occur on typical fields. □

Jim Puhalla is president of Sportscape International, Inc., of Boardman, OH, and Dallas, TX. He is author, with Mississippi State University professors Jeff Krans and Mike Goatley, of a forthcoming book: Sports Fields — a Manual for Design, Construction and Maintenance.

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Tip o' the Month

Continued from pg. 6

For outfields, a couple of options allow you to eliminate tedious maintenance and long-term turf problems. Avoid chalk or marking powder, since most of these products don't decompose. After years of



use, they will build up to create bumps. Many groundskeepers will cut a soil path that runs the length of the chalk line.



Used in conjunction with a short cropped mower, a spray aerosol can be used to mark a field. This gives the field a neat and clean appearance, and it takes a minimal amount of effort. Lines will last approximately seven days. You can add turf regulators to reduce the turf's vertical growth and increase the life of your lines.

Some facilities use the edge of the turf as the fair line. Granted, some kinds of turf require periodic edging, but this kind of design reduces line marking and frees up maintenance time. This practice also makes it easier for umpires to make a



tough call. This solution is much more desirable than using damaging, non-selective herbicides, as pictured. □

Floyd Perry is author of three books: The Pictorial Guides to Quality Groundskeeping: I - Covering the Bases; II - There Ain't No Rules; and III - Maintain It Easy, Keep It Safe. He also produces two videos: The ABC's of Grounds Maintenance: Vol. 1, Softball; and Vol. 2, Baseball. For more information, call: (800) 227-9381, or visit his web site: <http://gms.simplenet.com>.

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Making Multi-Use Equipment

Work for You

by Steve Guise

Sports turf managers didn't coin the term "thinking out of the box," but our actions over the years have helped define it. With too much to do and too little time in which to do it, we need to rally small crews and limited resources to make the impossible happen on our fields.

Refuse to accept the idea that something *can't* be done, and you'll be primed to develop innovative ways to reach the goal of safe, playable fields. Finding creative ways to make equipment available is a good place to start. In keeping with the industry-wide spirit of sharing, I can offer a few tips for making savvy equipment choices and for making that equipment work for you.

Prove you need it

Financial entities often get nervous when an expensive piece of equipment appears on your projected budget. You have to help them think beyond the initial cost, and demonstrate the results the machine can produce — and the money it will save through increased productivity and efficiency.

Good record keeping is essential. It shows the extent of your current program and the results you are now achieving. From this base, you can project the potential savings new equipment will produce.

Further documentation is sometimes needed. You may need to invest in diagnostic tools to provide quantifiable information on specific situations.

You're probably doing this already with soil testing and tissue testing, both to justify and to fine-tune your fertilization program. Consider using the Clegg Impact Soil Tester in the same manner. It's been used for years to test the hardness of aggregates in road-base material, and it's now gaining popularity as a lightweight tool to assess a field's hardness and moisture content.

The impact hammer can document changes in field conditions to show variations in hardness associated

The Clegg Impact Soil Tester measures the degree of hardness in a natural-turf field, and helps pinpoint areas that require core aeration. This information provides the evidence you need to convince a coach to shift practices to another field. It forms the documentation necessary to take a field out of play for renovation, and it might even help support your request for new aeration equipment. The test can supply data to confirm the need to replace an old artificial-turf field, or you may use it to check for variations during field construction or renovation to ensure consistency in the degree of hardness.

Sharing is good

Be creative in your attempts to control expenses. For instance, the Clegg Impact Soil Tester can be purchased cooperatively by a city's park department and local high schools, or among parks and field-user organizations. An architectural or construction firm might even offer to lend one out as a service to area sports turf managers, or to coaches or officials of various sports.

Consider sharing equipment with other sports turf managers, or with golf course superintendents or lawn care services. Your facility can purchase an aerator, while the other finances a topdresser or slit seeder. Use of each unit can be



The Net-Avator Soil Conditioner can bury stones to an eight to 10-inch depth, while performing six other ground preparation operations in the same pass.

Courtesy: Multi-Use Designs

with different soil profiles and field construction methods. It can also compare conditions in heavily used fields with those of fields that experience less traffic.

continued on pg. 18



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coordinated according to schedules and areas of need. Depending on the flexibility of your programs, you might exchange personnel as well, so that a crew member who is familiar with the equipment can operate it at both facilities.

You may not even need to look beyond your own facility for shared-

use opportunities. Suppose you manage turf for a high school with a combination football/soccer field; a combination baseball/softball field; and two to four general-purpose fields. You'd like a multi-use utility vehicle to transport materials for field preparation and general cleanup. You'd also use it as your spray vehi-

cle, your field painting unit, the power source to pull spreaders and seeders, and as a plow to move snow from the football field for late-season play.

If these roles don't sufficiently justify the purchase to your budgeting entities, talk to the coaches and athletic trainer. The same vehicle can be used during practices and games to transport equipment, containers of ice, water and sports drinks, tape for ankles, and medical supplies. Some units can even be equipped with a removable, modular medical rescue unit to transport an injured player or fan from the field.

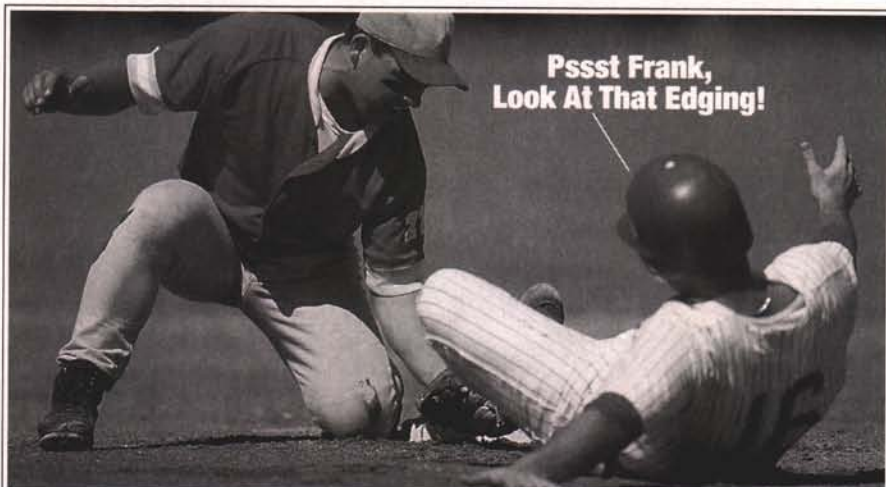
Check your options

Outline your overall maintenance program to identify your areas of need. From this point, you can scan supplier's advertising and trade show displays to study the latest offerings in equipment technology. Gather as much information as possible from sales and technical representatives.

Examine product features in terms of benefits that relate to your own program. If your crews will be mowing multiple fields with a ride-on reel mower, compare cutting units on various reel mowers for consistency and quality of cut. If crews will be using a rotary mower to cut the field and lawn areas around the property, compare cut quality and the ease of changing the mowing height. If the grounds are highly landscaped, consider whether you want a front-mount or mid-mount mowing unit. Look at the different kinds of attachments available for each machine, and consider which ones will benefit your program the most.

Approach each area of consideration with an open mind. For example, the Net-Avator Soil Conditioner is a multi-use product that was developed by the British Landscape Equipment Company. It connects to any tractor to allow the operator to bury stones on sports fields, golf courses, or other landscapes to a depth of eight to 10 inches.

While relatively new to the United States, Net-Avator has proven itself on fields overseas. It eliminates the laborious tasks of screening the soil, removing the stones, and trucking them off the site. At the same time, and in the same pass, the Net-Avator per-



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"Promoting Better and Safer Sports Turf Areas"

continued from pg. 18

forms six additional ground-preparation operations. It cultivates the soil, pulverizes the soil to a fine tilth, levels and rakes, finish rolls, and sows grass seed.

This versatile machine can also incorporate other elements directly into a field. Soil amendments, pre-plant fertilizers, or geosynthetic products such as Netlon polypropylene mesh can all be added, while Net-Avator maintains a level grade.

The frequency and timing of different procedures will determine whether they can be accomplished with the help of the same machine.

Closing the deal

When you've narrowed your choices to two or three machines, look for input from others who are already using the equipment you're considering. Compare warranty programs, efficiency of the different suppliers' parts delivery systems, and ratings of service options.

Look for alternate financing. Will a booster club or field-user group

help raise part or all of the funds? Will local merchants or service clubs help cover costs?



One machine with multiple uses spreads costs and increases productivity.

Courtesy: Toro

Don't automatically rule out these auxiliary funding sources. Take the time to prepare a needs request and ask for assistance. If these organizations turn down your request, at

least you've made them aware of your program and your needs.

Compare purchase options. Does outright purchase or a lease program better fit your facility's budget and cash-flow projections? Is your older equipment worth enough on a trade in to make that worthwhile, or would you be better off keeping the old machine as a back-up unit?

Selecting a multi-use machine can be time consuming, but your efforts will be rewarded. A good piece of multi-use equipment is a major investment, but it can pay for itself in the long run. Your decisions will have a long-term impact on the efficiency and effectiveness of your field maintenance program. □

Steve Guise is director of business development for Marina Landscape, Inc., Anaheim, CA, and is president of the Sports Turf Managers Association.

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