



was applied every 4 to 6 weeks; the rate was varied to supply 1 to 2 lbs. actual potash. I also made one app of White Gold 0-0-24, a slow-release calcium-sulfur-potash from Magic Green fertilizers. Other things being equal, when you're talking sports turf, I say the tougher the better.

looked like velvet. It was not only unusually dense, but also tough. I mean exceptionally tough. It had our new five-reel, 8-bladed Toro Reelmaster 5200T grunting!

I've been high on potash for tough tissue in grass plants. Lesco's 0-0-50

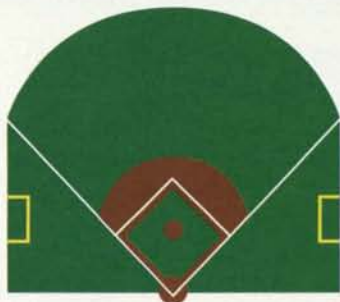
This grass was plenty tough, and a good thing it was, too. Two weeks of football camp began June 19th. The field was ready—and then some. It got used daily from 9 to 3 p.m. by about 500 young players over all. The first week was for 8 to 13-year-olds; then a week for high school seniors, including many from the mainland.

The University of Hawaii Warriors began practicing August 18th putting 125 players on the field.

The soccer field went into service in August, too. The U. of H. home games are played in the stadium at the Honolulu soccer park, a new 20-field complex near the airport. Visiting women's teams from Tulsa, Arkansas, Northern Arizona, Wyoming, Boise State, Loyola-Marymont, and Oregon State practiced on the new soccer field on campus. Players and coaches were very complimentary and wanted to know how we did it. Many said they wished they had a field of this caliber back home.

V.I.P.s on Softball Field

The U. of H. women's softball field, in a stadium that seats 1,200, shaped up very well. It was used in late summer by some V.I.P. visitors. The U.S. softball women's team spent 10 days and played six games here en route to the Summer Olympics in Australia. Besides the University of Hawaii



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women's team, a Hawaiian women's all pro team and the Hawaii Pacific University women's team all helped warm up the national team which went on to Sydney where they won the Gold!

The softball field became infested with purple nutsedge. Manage herbicide cleaned it up beautifully with two applications. The new fields also had some crabgrass pressure during the first month of grow in but we sprayed Trimec Plus, with one application controlling it in the football field and two in soccer.

The two new fields held up well in spite of a punishing schedule. You'd see kickers practicing from the 40 yard line down to the end zone, while the band used the rest of the football field and drill area to practice their marching routines. When football or soccer players weren't on their fields, they would be switched to cross country-running layouts or used for softball

team drills, cheer leaders, women's track, etc.

We thought aeration might be needed as often as once a month. Through October, we aerated about every other month and experienced no compaction or drainage problems.

Besides the 1-inch diameter 16-inch-long tines, the Vertidrain 7516 attachments included the quarter-inch and half-inch tine clusters. The aerator attached via a 3-point hitch and PTO to a Kubota 49 horsepower diesel tractor with high flotation tires. The Turfco Mete-R-Matic III topdresser with 22.5 cubic ft. capacity was a tow-behind model.

The football field was topdressed with a quarter-inch of topdressing, most times after aeration. We used the 40-60 compost/soil mix the first two times and silica sand thereafter. This is the good sand used by top golf courses and a couple of schools here with athletic programs that get good

financial support.

A rootzone mix of 75 percent Australian sand, 15 percent peat and 10 percent native soil will be used for a new grass field being built at a very large and well respected school. Called Kamehameha, it was founded and endowed by a royal princess in 1895. The new stadium for football, soccer and track at their Honolulu high school is being done by PBR-Hawaii, a firm with an impressive track record. Stan Duncan, the landscape architect in charge, told me the Tif 419 field will be sprigged next February and given biostimulants like we used at the university.

Quality: Keeping It Up

I hope the U. of H. sports field maintenance budget for future years will provide for adequate amounts of the good topdressing sand. A verticutter is something else that was badly needed to cope with the turf's vigor and maintain a safe, quality



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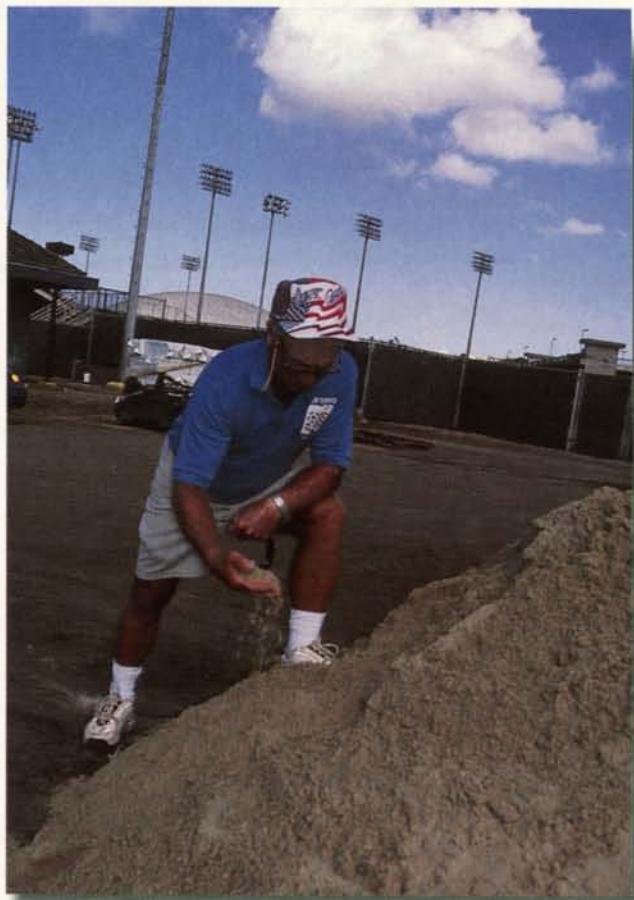


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Circle 111 on Inquiry Card.



Toma studies the Australian sand that will comprise 75 percent of the rootzone mix

many rooster-tails; after aeration, bermudagrass surged up out of the holes.

We had to cut the grass at 3/4 in. instead of 1/2 in. and had a fluffy surface that could interfere with the players' footing. With a verticutter, these problems would be avoided or at least reduced. The same would be true with heavy thatch. Coach Jones became personally interested in this and, before I left, he told me that the paper work for this new machine was being expedited.

Now that U. of Hawaii has these grass fields, maintaining them in good condition depends on having the right equipment and supplies. Otherwise, they will go downhill. To all who ask me how to succeed as a professional groundskeeper I say: Think safety, think maintenance, and try to familiarize the budget people with what it takes to maintain a safe and superior playing field. Why? To protect their investment.

The University of Hawaii has spent a lot of money building these fields and setting up a professional-level grounds care program. They have new and better equipment and a well-trained crew. I hope to see them all join the Sports Turf Managers Association. As STMA members they can continue to gain knowledge and pride in their profession. I congratulate the administration and coaches for their vision and courage, and I feel honored to have been on their team.

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When to Resurface and When to Rebuild

by Boyd Montgomery CSFM

This article will discuss the options to look at when faced with the issue of either renovation or rebuilding. With the help of the Field Improvement Data Sheet, readers will learn how to use the information collected on this form to decide if renovation or rebuilding is what is needed. I will discuss what is involved with field renovation in order to be successful, as well as what types of field construction methods are on the market today.

What is the Field Data Survey?

The Field Data Survey is designed to help groundskeepers better understand the fields that he or she is in charge of. It details specific areas, such as existing cultural practices, construction, fertility programs, chemical applications and field use. Once all this data has been collected,

the groundskeeper can make informed decisions toward renovation or rebuilding.

This tool can be looked at in the same light as the "as built" drawings for the fields.

Field Data Survey Breakdown

Following is a list of the sections in the survey, as well as a brief explanation of each:

Information Section

Includes the names of groundskeeper, contractor, maintenance company and project supervisor

Mowing

Height, type of grass and equipment used

Fertility

Includes the types used, methods,

product names and application techniques.

Aspects of field maintenance performed

Aeration, overseeding, soil analysis, topdressing equipment, seed type, sod, weed control, fungicide, insecticide and application techniques.

Description of overall appearance

Activity schedule

Number of games, who schedules the games, policies to protect fields from misuse and field use breakdown.

Site Plan

Includes plans for drainage, irrigation, graded elevations and sub-soil.

Defining your team

List key contacts of individuals that should give input to any changes on that field.

Estimated budget

Amount of money set aside for capital expenses.

What's Next?

After compiling all the data on the Field Data Survey form, a groundskeeper can meet with his or her board, supervisors, management or assembled team to make a decision based on the data collected to either renovate or rebuild.

Also, the groundskeeper can use the field data information collected to make a presentation to the above mentioned members as to the direction he or she feels the group should head-resurfacing or rebuilding.

Resurfacing

One means of resurfacing is through any of several aeration techniques, which include hollow or solid tine equipment, shatter tine equipment and verti-drain equipment.

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When aerating, be sure to wait until the end of the field's heavy use season. Flag all underground utilities, irrigation systems and heating systems. Make several passes, between four and eight, and cover the field in varying directions. If using a hollow tine unit, be sure to collect the cores when completed.

Some benefits of aeration include: the release of toxic gasses, a decrease in wilting and isolated dry spots, increased water penetration, improved root growth in the hole areas, control of thatch, preparation of a seedbed for overseeding and improve turfgrass response to fertilizer.

Another form of resurfacing is through topdressing. When using this method, managers must first get a soil analysis test to determine the topdressing compatibility with the existing root zone mix. Remember, topdressing with sand on native soil fields will not improve the soils structure and drainage. You must reach 60 to 70 percent in the top three to four inches before topdressing with sand will help drainage and infiltration characteristics.

Layering of different soil textures within the root zone will be extremely detrimental. To eliminate the possibility of layering, make a constant supply of your topdressing material available.

Aeration cores of native soil fields make the best topdressing material when you drag the material back into the field. Diatomaceous earth or calcined clay products can also be used as alternatives for native fields, although this is a costly process.

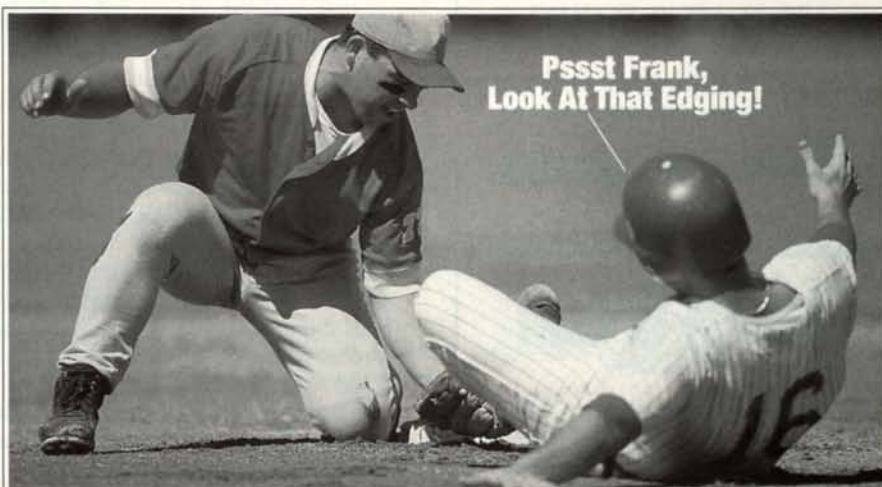
In today's athletic fields, the predominate material used for topdressing is sand. Sand particles vary and a USGA recommendation sheet must be used. Uniformity of particle size is the key.

Reseeding is another means of resurfacing sports fields. There are three forms of reseeding: Dormant seeding, drop or broadcast seeding and pregerminated seeding.

When reseeding, always remember to create a good seed-soil contact on the seedbed, with an appropriate

level of soil surface moisture and a generous amount of seed. Overseeding during the playing season will allow players to cleat the seed into the surface. A drag mat pulled behind a utility vehicle is another good way to work the seed into the seed bed.

For a faster solution, sod can be installed on your fields, either in big rolls or slabs (or small rolls). When applying sod, there are several key factors to consider. Make sure the sod is mature, around 12 to 18 months old. Before laying the sod, the soil needs to be prepared. This is done by performing a soil test and



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loosening the soil to at least 6 inches. Remember, excessive tilling will destroy the soil structure.

Select a sod that has been grown on the same soil as the existing field. Layering effects will be caused by not following this rule. Washed sod can be purchased, but generally is quite expensive. Water the sod liberally for the first two weeks, and be sure to periodically check for gaps. If gaps are found, fill them with matching soil or plugs.

However you decide to resurface your field, there are two key factors in making the renovation project a success: Timing and communication. For the timing aspect, coordination with the users of the field and the renovation project is a key. The extent of your renovation project will depend on the window in which the work will be performed. For good communication, make sure that all parties involved—users, the boss, board, contractors and yourself—have an open line of communication.

Rebuild

There are three main types of field construction: Natural soil (native soil), modified soil and non-soil medium/perched water table (essentially 100 percent sand). Each of these methods have their own advantages and disadvantages, as described below.

Natural or native soil construction uses the existing soil on site or topsoil hauled in from the area. These fields hold adequate nutrients and have a high water-holding capacity. They are generally crowned, which can be a disadvantage for some sports, and compact easily. Perimeter drain tile lines are generally used to move water runoff—internal drainage within the playing area generally is not recommended. The cost of this type of rebuilding can range from \$3,000 to \$20,000.

Modified soil fields generally have a coarse physical amendment, such as sand, mixed uniformly with the existing site soil. This allows better infiltration rates to the internal drainage. Internal drainage is used to move water to the perimeter tile lines. The fields will need internal irrigation and a semi-aggressive fertilization program. The cost of this

procedure can range from \$70,000 to \$400,000.

The non-soil medium/perched water table method of rebuilding is the most expensive, initially. This method relies on a nearly 100 percent sand profile. Selecting the proper, uniform sand particle size is key. These fields are essentially flat, not crowned, and feature very high infiltration rates. Due to high percolation rates, internal drainage needs to be designed to move large amounts of water away quickly. Irrigation and high fertility programs are needed. The cost for this type of field can range anywhere from \$600,000 to \$1 million.

With a soilless medium construction many new fields are installing new stabilizing technologies that give the athletes better traction by producing a stronger knitting of the root structure with the stabilizing mats or fiber. These products reduce shearing and tearing and allow for better grass growth, recuperation and percentage of ground cover. Examples include mats, carpets, fabrics, fragments of interlocking mesh, fibers and fibers sown into the root zone.

There are several key factors to remember when rebuilding. Budgets will drive the project; communications between groundskeeper, your boss, the user groups and board is essential. Check all references on contractors, and be specific when writing the bid for the project.

Do your homework! Research different types of construction alternatives on the Web and by talking with fellow STMA members who have been through the process. Make sure that once the project is started that a timeline is followed by the contractor. Hold weekly or daily meetings with the contractor, and do not pay them until the work has been inspected and signed off on by you or a project supervisor.

Field Improvement Data Sheet

Sylvania Recreation

Facility Name: _____ Date: _____
Field: _____
Type: [Baseball/Softball] [Football] [Soccer]
[Lacrosse] [Other] [Facilities Manager/Director]
Address: _____
City: _____
State: _____
Zip: _____
Phone: _____
Fax: _____
E-mail: _____

A. If you do not perform the maintenance please list the name of the company, address, and contact name and numbers.

Company Name: _____
Name: _____
Address: _____
City: _____
State: _____
Zip: _____

Phone: _____
Fax: _____
E-mail: _____

B. Contractor Information

If you have the information of the company(s) that constructed this field please include it below.

Company Name: _____
Name: _____
Address: _____
City: _____
State: _____
Zip: _____
Phone: _____
Fax: _____
E-mail: _____
Project Supervisor: _____

1. Is there any maintenance done on this field currently? [Yes] or [No]
2. Do you have a soil analysis done for this field? Yes or No—If yes, please include.
3. Do you have a tissue analysis done for the stand? Yes or No—If yes, please include.
4. What word best describes the maintenance done to this field?
Daily/Monthly/When ever we get time

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I. Briefly describe the type of mowing that is done on this field:

1. What is the cutting height?
2. What is the type of grass?
3. What type of equipment is used to cut this field?

II. Briefly describe the fertility program for this field.

1. What type of fertilizer is used?
[Slow-release] [Fast-release]
[I don't know]
2. What is your method of delivery?
[Liquid] [Granular]
3. What are the product names/company names used?
4. How is the fertilizer applied?

III. Briefly describe any other aspect of field maintenance performed.

1. Do you have an aeration program?
[Yes] or [No]
- 1a. If yes, what type of equipment is used?
[Hollow] [Slicing] [Deep Tine]
[Verti-Drain] [Water Injection]
[Deep Drilling]
2. Do you have a topdressing program?
[Yes] or [No]
- 2a. If yes, what type of material is used?
- 2b. Do you have an analysis of this material?
Yes or No-If yes, please include.
- 2c. Explain how and when you apply the topdressing.
3. Do you have an overseeding program?
[Yes] or [No]
- 3a. If yes, what type of seed is used and at what rate?
- 3b. If you have a seed tag, please include it.
- 3c. What type of equipment is used?
[Slit-Seeder] [Broadcast]
- 3d. Do you use pre-germinated seed?
[Yes] or [No]
- 3e. If yes, please explain how you pre-germinate and spread:
4. Have you ever used sod before?
[Yes] or [No]
- 4a. If yes, did you use a sod that was grown

on the same profile as your field? Yes or No

5. Do you have a weed control program?
[Yes] or [No]
- 5a. What products are used and what time of the year are they applied?
- 5b. If you have the label of the products you use on file please include it. Also, please include the application record of the products put on this field. If you have an outside company spray your facility, please list contact information below:

Name of Company
Contact Name
Phone
Applicator

6. Do you have a fungicide or insecticide control program? [Yes] or [No]

- 6a. What products are used and what time of the year are they applied?

- 6b. If you have the label of the products you use on file please include it. Also, please include the application record of the products put on this field. If you have an outside company spray your facility, please list contact information below:

Name of Company
Contact Name
Phone
Applicator

IV. Describe the overall appearance of the field.

V. Activity Schedule

1. How many games are played on this field a year?
2. Who schedules events on this facility?
3. Is there any type of a break between seasons? [Yes] or [No]
- 3a. If yes, please list the specific months that the fields are in use.
4. Are there policies set forth to protect the fields when conditions warrant? Yes or No
- 4a. If yes, please list the policy below or attach.
- 4b. Who enforces the policies?
5. Is the field used for other non-game activities?
- 5a. If yes, please list events and approximately how many participants.
6. Is the field used for another sport activity?

6a. If yes, please explain.

7. Is there an open line of communication between the scheduler and the field manager? [Yes] or [No]

VI. Site Plans

1. Is the field irrigated? [Yes] or [No]
- 1a. If yes, what type of system?
2. Does the field have existing drainage? [Yes] or [No]
- 2a. If yes, what is the depth, spacing, size, backfill and sleeved?
3. Please include a copy of the site plans that list the following:
[Irrigation plan] [Drainage plan]
[Grades & elevations] [Sub-soil]
4. Any other engineering information you can provide? (Boring tests, etc.)
5. Is there a master plan for the site?
[Yes] or [No]
6. Is there any other special feature to this field? Yes or No-If yes, please list:

VII. Please list key contacts and phone numbers for those individuals that should be part of the team in either rebuilding this field or resurfacing (i.e. user-group key members, board members, staff, community leaders).

Name _____
Group _____
Phone _____
E-mail _____

Name _____
Group _____
Phone _____
E-mail _____

Name _____
Group _____
Phone _____
E-mail _____

VII. Estimated Budget

1. What type of dollars are set aside for either new construction/complete rebuild or refurbishing the field?
2. If this is for construction, what is the breakdown for the project (i.e. design, construction, consultant, supervisor, etc.).
3. Does the project need to be bid out? Yes or No-If yes, please list the criteria: