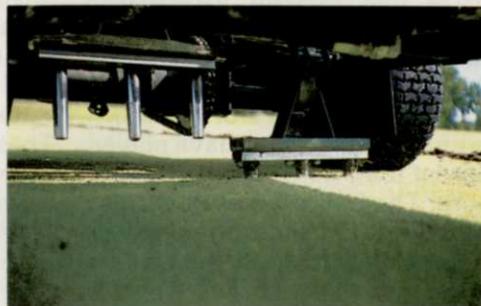




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The Biggest Race of All

L.A. Coliseum turf team races against clock to solve turf problems at 1984 Olympics site.

by Stephen T. Cockerham, consulting agronomist

The year 1984 is going to be a big year for the grand old lady, the Los Angeles Coliseum.

Built for the 1932 Summer Olympics, 52 years later, she will play hostess to the Summer Olympics this year.

Over the last 60 years, the stadium has hosted numerous events. The Billy Graham Crusade brought in one of the largest crowds back in the '60s. The University of Southern California and UCLA have played most of their home football games there. The Los Angeles Rams also played most of their home games at the Coliseum until just a few years ago. Now the Los Angeles Raiders are the NFL home team.

There have been rock concerts, motocross, soccer, track and field, movies, TV shows, TV commercials, and political rallies. Its uses have been many and varied for the City of Los Angeles over the years.

Getting ready

Refurbishing in several areas was necessary for an Olympic-caliber facility. A new and slightly relocated track was installed as well as a new television screen-type scoreboard, and a new field. And with that new field, the agronomists were called in.

In 1981, the decision-makers decided on the type of playing field to be built. They went with a state-of-the-art sand basin field. These are usually an excavated site with a network of drain lines, filled with a uniform medium sand. The turf is sodded, often with the soil washed off of the roots. And presto - there is an uncrowned, flat sports field with super drainage.

There are several companies which install the sand basin fields. The Coliseum contracted with Hy-Play Systems Inc., Aurora, OR.

There are two factors in construction which differentiate this system from the others. First, there is no poly liner to the basin and, second, the excavation is not

filled with uniform medium sand.

Whether to use poly liners is not a particularly controversial subject. However, the growing medium used is more widely discussed.

Growing grass

The Coliseum field has the drain lines (plus several miles of TV cables) which are covered with coarse gravel, then a layer of finer material, and successive layers until the top, about seven inches, is a sand. There is some concern over the layering and the effects of perched water tables, however, not everyone believes that to be a problem. Whether it is a problem or not, it certainly is not going to be changed, so the job at hand is to grow grass on what is there.

With the installation of Santa Ana Hybrid bermuda, in the Spring of 1982, the field was complete. During the fall and winter, the traffic was heavy, but, due to the NFL Players strike, not as intense as normal. The turf was overseeded with PhD perennial ryegrass blend in the fall. Some

Stephen T. Cockerham is in Ag Operations for the University of California at Riverside.

overseeding was done in the wear areas. In the Spring of 1983, the new USFL franchise, Los Angeles Express, began playing. In the past, this period had been used for maintenance.

By May, the Coliseum management had become quite concerned. The bermuda was not emerging through the ryegrass. General Manager Jim Hardy, Assistant General Manager Jerry Nielsen, and Supervisor Bob Williams started looking for help. Dr. Jim Watson, vice president of the Toro Company and well known turf authority, was the man that was suggested. After looking at the field, Watson suggested that a local consultant be retained. This would permit frequent observations of the surface.

Bermuda loss

The problem was that as much as 80 percent of the bermuda had been lost over the winter. The roots of the remaining bermuda were nearly gone and the ryegrass roots weren't in much better shape. In all fairness, the field still looked better than most, but it was ryegrass, not the desired hybrid bermuda, and that was not the way it was supposed to be.

Soil samples were taken as well as samples of about every thing else. Then a team of experts was put together. Because of the importance of the field to the Olympics, there was a feeling of urgency by all participants. The team consisted of William Davis, turf specialist, Dr. Robert Endo, plant pathologist, Dr. Victor Gibeault, turf specialist, Jewell Meyer, irrigation specialist, John Van Dam, farm advisor, and Dr. Victor Youngner, professor of turfgrass and creator of Santa Ana Hybrid Bermuda--all from the University of California. Also participating were Dr. Watson and myself, the local consultant.

Keeping in mind that growing high traffic turf on pure sand media is a relatively new thing, the team went back to the fundamentals of growing turf. The nutrition analyses were brought up to levels that were considered appropriate. Bioassays were run with no solid conclusions.

The irrigation system and program were evaluated and both were found to be satisfactory. Meetings and discussions were held where the situation and data were debated. What was concluded was that Bob Williams and his crew really weren't doing anything wrong. However, something was definitely wrong.

Meanwhile new stolons were drilled into the existing turf. As time permitted, the center of the field was resodded--after all the Raiders and USC were going to play in the fall. Through the summer there was a track meet, several international soccer games, a movie, several dozen commercials, and USFL football.

Success story

The stolon job was pretty successful as was the sod installation. By fall, the field was more than 85 percent bermuda and looked gorgeous. TV announcers, newspaper writers, and football players complimented the Coliseum management on the condition of the field. It really was a success story.

However, the tale doesn't end there. Something is still wrong. Although the turf looks good and plays just fine, the roots don't seem to be as healthy as they should be. No one wants the same thing to happen as happened last year. Unfortunately, the question as to what did happen still is not answered. The turf team is still meeting and samples are still being analyzed.

Is it a pathogen, a toxic substance, a deficiency? One thing is pretty sure, management practices have been eliminated as being the culprit.

The Olympics are coming on fast. The field will be under the world's microscope. Many suggestions have been put forward from various sources. However, nothing can compare to the heartfelt emotion brought on by the verdant perfection of an emerald turf. Can you imagine what the hammer throw would do to an artificial surface. They would probably have to use a "claw" hammer to keep it on the field.

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Sewage Compost Use Suffers Information Gap

by Bruce F. Shank, executive editor

Turf managers are beginning to experience pressure from salesmen of various forms of sewage sludge for turf before information on its use is generally available. Weeds Trees & Turf interviewed a number of agronomists and suppliers to gain basic information on the various forms of sewage sludge for users. A detailed guide on use of these products by the primary researcher in the field, Dr. Jack Murray of the USDA, will appear in the next six months.



Manure spreader adapted for compost.

A cloud of doubt hangs over use of sewage byproducts for turf. Ironically, manure was the first fertilizer for turf in both establishment and in maintenance as a top-dressing.

Milorganite, a processed sewage sludge, has been sold and used in turf since the 1920's. The breweries and tanneries, whose waste makes Milorganite exceptionally high in nitrogen, and a high-temperature granulation process allow the Milwaukee Sewerage Commission to keep volumes down and shipping practical, according to Jim Latham, director of marketing.

Even so, the Commission was forced to add a warning on its bags that Milorganite may contain high concentrations of certain metals which may accumulate in edible products.

Check sludge source

This warning may exemplify the basic doubt about sludge prod-

ucts. "Source is definitely a limiting factor," claims agronomist Richard Schmidt of Virginia Polytechnic Institute and State University, Blacksburg. Schmidt has conducted studies using sewage sludge in establishment of sod. "Heavy metals from industrial wastes could have a detrimental effect on turf growth," says Schmidt.

An article in the September 15, 1983 issue of the American Nurseryman by Robert H. Dowdy, with USDA in St. Paul, MN, states, "Application on any site, whether for food or non-food crops, will probably be limited by an inevitable metal buildup, although the long-term effects of trace metals on soil are not yet clear." Metals raise the cation exchange capacity of the soil and also raise the pH. Higher pH soils, however, do not accumulate metals as fast says Dowdy. "Sludge must be analyzed regularly," Dowdy insists.

Jack Murray of USDA's Research Lab in Beltsville, MD, is very bullish on the use of sludge and compost in turf. "States are looking at the turf market as a non-food crop user of sewage sludge," Murray revealed. "The Environmental Protection Agency and most health departments have verified the sterility of compost after proper processing."

"Our work has shown compost, when applied at the correct time, reduces turf disease, improves the soil, and provides excellent long-term turf nutrition," states Murray. He and a team of scientists have produced a number of major reports on use of sewage sludge

compost for soil improvement and plant growth.

"Compost can replace topsoil in preparing a seedbed, be used as a topdressing with overseeding, or serve as a slow-release fertilizer," Murray states.

"Its best use is as a soil amendment. Compared to topsoil, it is lighter, easier to spread, weed-free, and contributes more to the soil." Murray recommends a one-third compost to two-thirds soil mix for seedbed preparation.

Even distribution

"Compost's biggest problem right now is the lack of a device to spread the compost evenly in the volumes required," Murray points out.

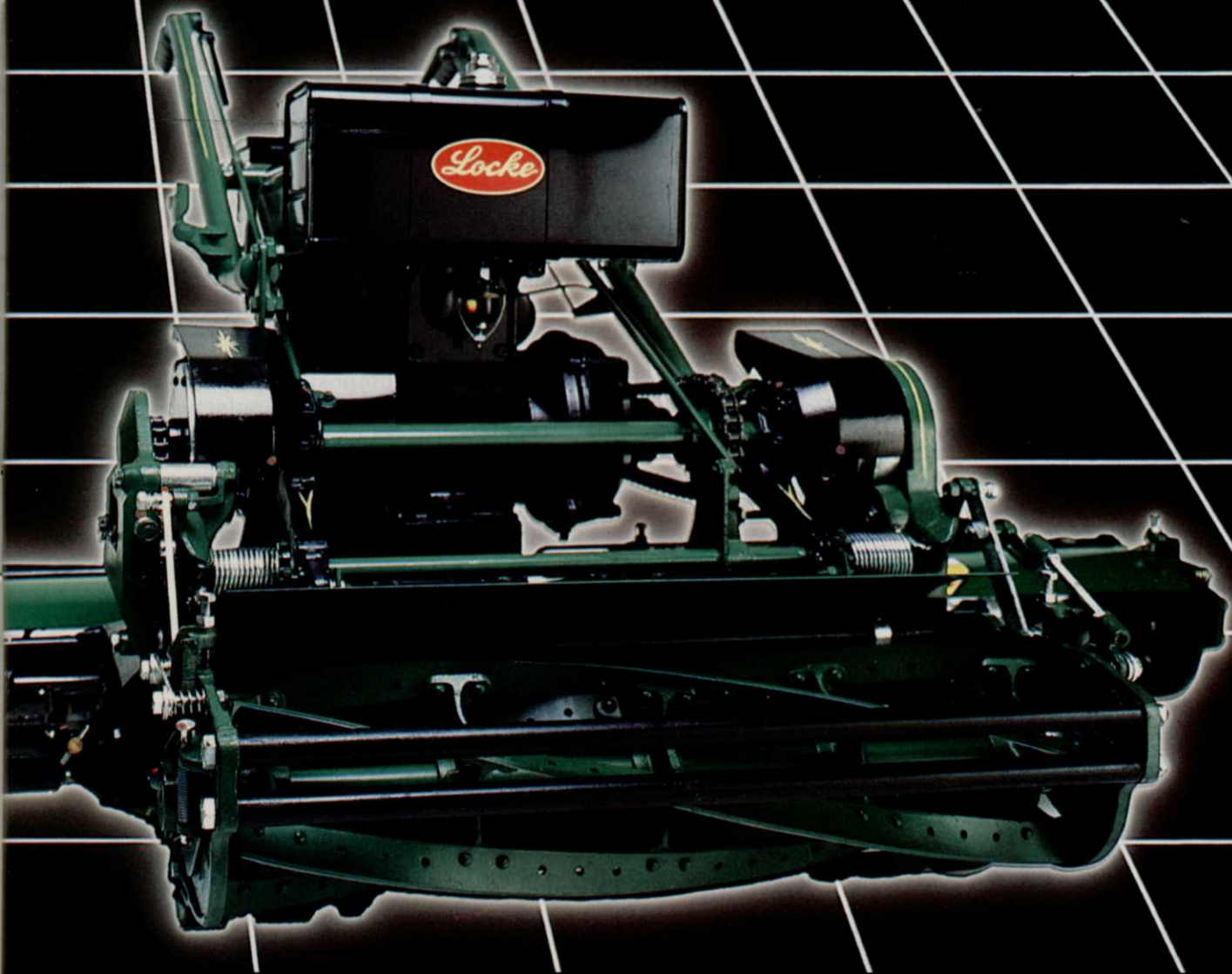
Grove Teates, Jr., a consultant to municipalities for composting, believes he has licked the spreading problem with an adapted manure spreader. Teates has used Royer and Lindig shredders to reduce the size of the compost chips for application to turf. "Texture and moisture content greatly influence spreadability of compost," Teates said.

Cities are competition

Teates produces and sells ComPro compost mixes for turf, vegetable production, potting mixes, and land restoration. DelChem of Philadelphia, PA, and Emerald Isle, Ltd., of Ann Arbor, MI, also produce a line of compost products. Their competition in the future may be more municipalities than each other.

Teates consults the cities of Annapolis, MD, and Columbus, OH, in marketing compost. "More and more cities are starting compost operations," he says. "It's starting to get competitive. City administrators are in charge and see a way to generate revenue from compost while greatly reducing sludge disposal costs. A

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price war may be brewing. Some cities give the compost away."

Assuring sterility

Schmidt is concerned about proper composting. "You must rely on the processor of the compost for eliminating any unhealthy organisms in the product," Schmidt remarks. "The composting process must be carefully performed for temperatures to reach levels high enough to kill harmful organisms. Information on composting is available from USDA and the extension service."

Volume is obstacle

"But, the biggest problem with compost is the volume required to obtain sufficient nitrogen and the cost of shipping this large volume long distances," Schmidt says. Since nitrogen levels are less than five percent, tons per acre of compost are required.

Murray and associates reported 1,000 lbs. per 1,000 square feet, or nearly 25 tons per acre, would be



Wood chips are mixed with sludge for composting, then removed for spreading.

needed to serve as a turf fertilizer. This would be a one-half-inch layer on the surface which should be verticut or aerified into the soil. Furthermore, the sludge would have to be applied twice per year to equal rates of standard turf fertilizers.

Volumes for soil incorporation would be four to six times greater. "Compost is much lighter and easier to handle than topsoil," Murray defends. "You don't have

a guarantee topsoil is weed-free. After grinding up an asphalt parking lot, we've mixed compost with the asphalt and subsoil and achieved a good stand of grass."

"Long-distance shipping of compost is impractical," says Schmidt. Manufacturers are trying to solve this problem by fortifying compost and sludge products with additional nitrogen. Milorganite is a perfect example of changing the formula-

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tion to increase the practicality of shipping.

Municipal and commercial compost operations are growing. Federal, state, and local funding for environmentally-sound disposal of sewage sludge is available.

Private composting operations are not out of the question. A golf course or sod farm near a residential development could develop a private compost operation.

Layering possible

Surface application of compost to sand or soils with little organic content will cause layering. Some type of incorporation to mix the compost with the top two- to four-inches of soil is needed to encourage deep rooting, improve drainage, and provide a water reserve for drought periods.

The benefits of organic matter content in growing media are well known. Organic matter serves as a buffer to reduce chemical burn. It

serves as catalyst for important chemical reactions (cation exchange capacity) and it improves soil texture for better water and air movement. The problem is these benefits are only provided if the material is incorporated into the existing soil.

One example of layering is muck sod placed over clay, and the resulting summer stress and disease problems.

Only ten to twelve percent of the nitrogen in sewage sludge is released within the first 60 days, Murray states. Even so, applying the amount of sludge required to feed turf for a full year would create an initial period of lush growth. To counteract this, Murray recommends two applications per year at half rate, year after year.

"Compost is very effective during establishment and overseeding," Murray claims. "With large seed, such as tall fescue or perennial ryegrass, the compost can be placed over the seed. With small

Kentucky bluegrass seed the compost should be put down first."

Education needed

The problem is not the heavy metals or layering as much as it is marketing of sewage sludge products is ahead of educating the user.

The government is encouraging states to set up composting operations as private businesses are building the market with their compost mixes. The user is being sold product before he understands its proper use. That is unfortunate, because the underlying sense of putting a waste product to constructive use is great.

Sludge products and composts can play an important role in the turf market if better information on use was available. Jack Murray is making this one of his priorities for 1984. When he completes his guide to compost use, you will be able to read it in *Weeds Trees & Turf*. **WT&T**

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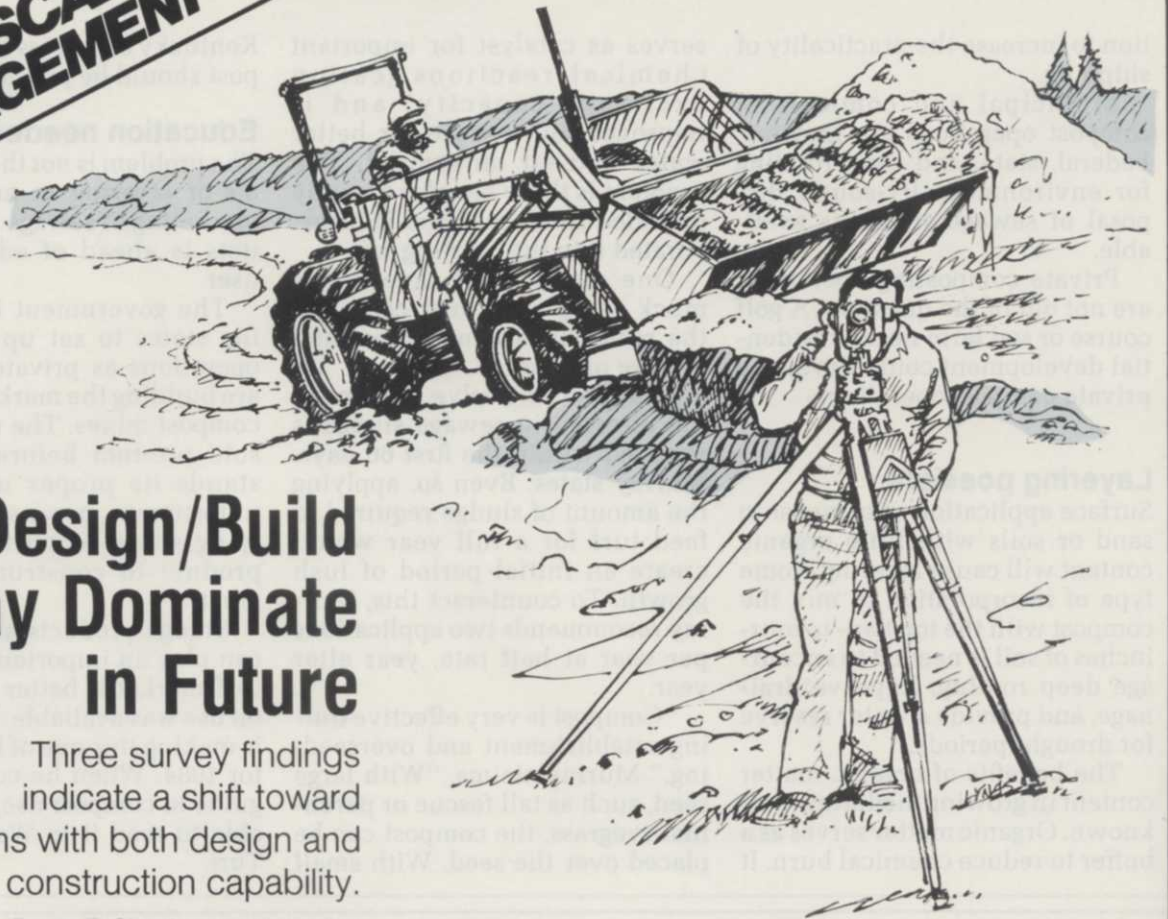


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Design/Build May Dominate in Future

Three survey findings indicate a shift toward firms with both design and construction capability.

by Bruce F. Shank, executive editor

In the future more than half the landscape construction work in the U.S. may be done by design/build companies, according to the latest *Weeds Trees & Turf* industry survey.

This prediction is based on three findings. First, more than 60 percent of landscape architects polled are in favor of the design/build concept. Second, commercial/industrial work is considered the most recession-proof and preferred part of construction by both architects and contractors. Small contractors, who have done designs for residential work, are improving their design capabilities to reach the commercial/industrial market. Third, architects desire greater control over both construction and maintenance of their designs.

Surprisingly, the contractors surveyed are decreasing the amount of maintenance work they do for more construction and design work. Increased competition in maintenance may be part

of the reason. The contractors recognize the excellent potential of maintenance services but they have actually moved away from maintenance, according to the dollar volume of work they do in design, construction, and maintenance.

Architects are already heavily involved in the commercial/industrial sector. They prefer working as a consultant to the property owner over working for the general contractor or a subcontractor (that would include landscape contractors). More than two-thirds offer follow-up inspection and maintenance guidelines for an additional fee. Working with the contractor before, during, and after installation is their only way to assure their design is carried out as intended.

It was evident from the survey results that nearly a third of the architects want to stay away from the construction end of the business and concentrate on consulting governmental agencies in

land use and other large institutions. They don't want the hassle of scheduling work crews, financing materials, and dealing with Mother Nature first hand. These are much the same reasons why building architects resist construction management.

The need for contractor and architect to work together is agreed. Yet it seems that contractors and architects are far apart in certain beliefs, particularly education. While landscape architects are strongly in favor of licensing, which requires a degree, more than two-thirds of the landscape contractors surveyed do not look for a college degree when hiring their foremen or middle managers.

The attitude of learning the business from the ground up is firmly entrenched in the minds of contractors. They are willing to pay young managers \$12,000 to \$18,000 if they have solid on-the-job experience.

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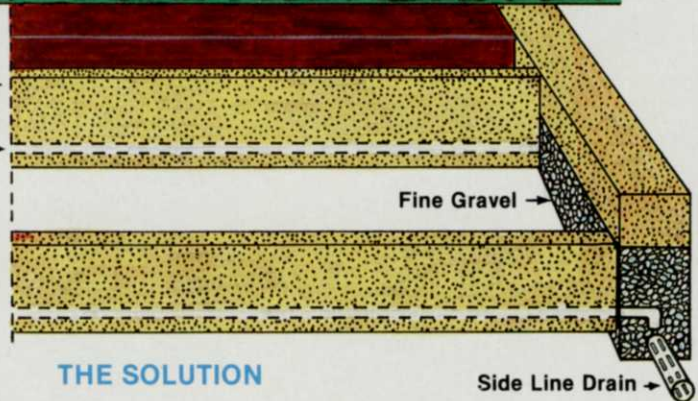
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