



yard and into a pool at the entry area. The water is generated through the stream via a submersible pump and cascades over stones specially selected and placed by Kesterson. Invisible from the street, the stream "is a nice surprise when you come around the corner to the entrance," says Kesterson.

He handpicked undamaged, natural-looking stones that have mosses in place for the streambed. "The stones should be shaped to fit into the flow of the stream." The larger stones were installed by using gunite and the smaller stones were placed later. A second water feature is located next to the back patio. It is a three-level, 40-gallon pool that operates via a remote pump. Its placement beneath a kitchen window creates a trickling water sound "while preparing a gourmet's delight," says Kesterson.

Concerning the front of the house, Kesterson said he was fortunate that the three large Japanese maples and Douglas firs were preserved as they provide a balance between yard and house and establish a relationship with the deciduous trees in the area. Also in the front yard is a nine-foot Aristata pine that was brought in from another of the company's sites.

challenges by creating an elegant, functional landscape that solved the design flaws while providing the intimate, private setting the house and neighborhood demanded.

"The most cost-effective and efficient way to bridge the gap between the foundation and the ground level was to bring in a number of boulders from another site we were involved with across the Columbia River," says Kesterson. The boulders, weighing as much as 5,000 pounds each, were laid in by back hoe at the base of the house and along the sidewalk. The walls were complemented by a brick wall that levelled the ground along the house entrance.

Perhaps the most unique feature of the landscape is an artificially created stream that runs through the

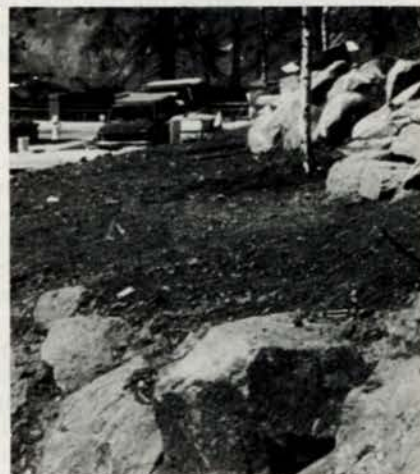
"I used several different grasses around this area and I feel it really blends in well. It creates the natural feeling I was looking for.

"There's a noticeable trend in the area to implement perennials and create the feel of an English garden," says Kesterson of the numerous varieties of perennials in and around the front tree bed. These include Fountain grass, Purple Noose Stripe, White Yarrow and Baby's Breath.

The backyard features a formal, three-level rose garden where 10 varieties of hybrid-T roses are in blossom. "The three garden levels in the backyard presented a classic opportunity to use roses. After all, this is the Rose City," says Kesterson, adding, "Overall I'm very happy with the way the project turned out." LM



This "Ottercrest" bronze sculpture comes into view as you near the front entry. It is placed close to the stream, which is also invisible from the street. An excellent view of the stream is from the Stratford's living room.



Boulders as large as 5,000 pounds each were laid in by back hoe to create a level area at the front entry. LM



Nightlighting can enhance a property's image and increase value.

TO LIGHT AT NIGHT

Selling nightlighting to owners and developers can be very difficult, unless you tell them exactly why it's such a good idea.

Incorporating lighting into landscape design allows the designer to use entirely different concepts. What is seen during the day may be entirely different from what is seen at night. Lighting permits the designer to focus the viewer's attention.

Many landscape architects and other green industry professionals would love to add lighting, or better lighting, to various sites. The problem is convincing bottom-line-oriented owners. Also, given the relatively high cost of energy, owners are likely to have a mindset that is predisposed to energy conservation.

Any analysis of lighting must consider the bottom-line value of its functions. This is exactly what lighting management does. Bottom-line values of factors such as reduced vandalism, reduced incidents of assault, lowered exposure to liability, and other factors greatly exceed the cost of

the lighting needed to attain these values.

The eyes have it

When inadequate lighting is provided, it often goes unnoticed because of our eyes' amazing ability to adapt. Nonetheless, many subtle, but important, negative effects can result. For example, an employee who is continually affected by glare may still be able to perform visual tasks, but he or she may also be subject to "unusual" eye fatigue or headaches—conditions associated with stressed adaptive eye muscles. Similarly, low-quality lighting or insufficient amounts of lighting in office areas result in lower productivity, because poor illumination results in more time being needed to perform tasks. It also increases the likelihood of errors being made.

The 26 points made in the related article clearly indicate the different

effects that lighting can have outdoors. They also suggest the proper method of approaching outdoor lighting management.

Once an owner or manager becomes familiar with key lighting issues, the next step involves retaining effective technical support. Numerous professional lighting consultants are members of the Illuminating Engineering Society of North America (IES, 345 East 47th Street, New York, NY 10017) and its local chapters (sections) throughout the United States.

Note, too, that manufacturer's representatives also are in a position to lend technical assistance. Many electrical contractors have fully staffed lighting design departments, and many electrical distributors also have personnel on staff who can be of assistance. The local electrical utility may also have personnel who can help, or at least should be in a position to iden-

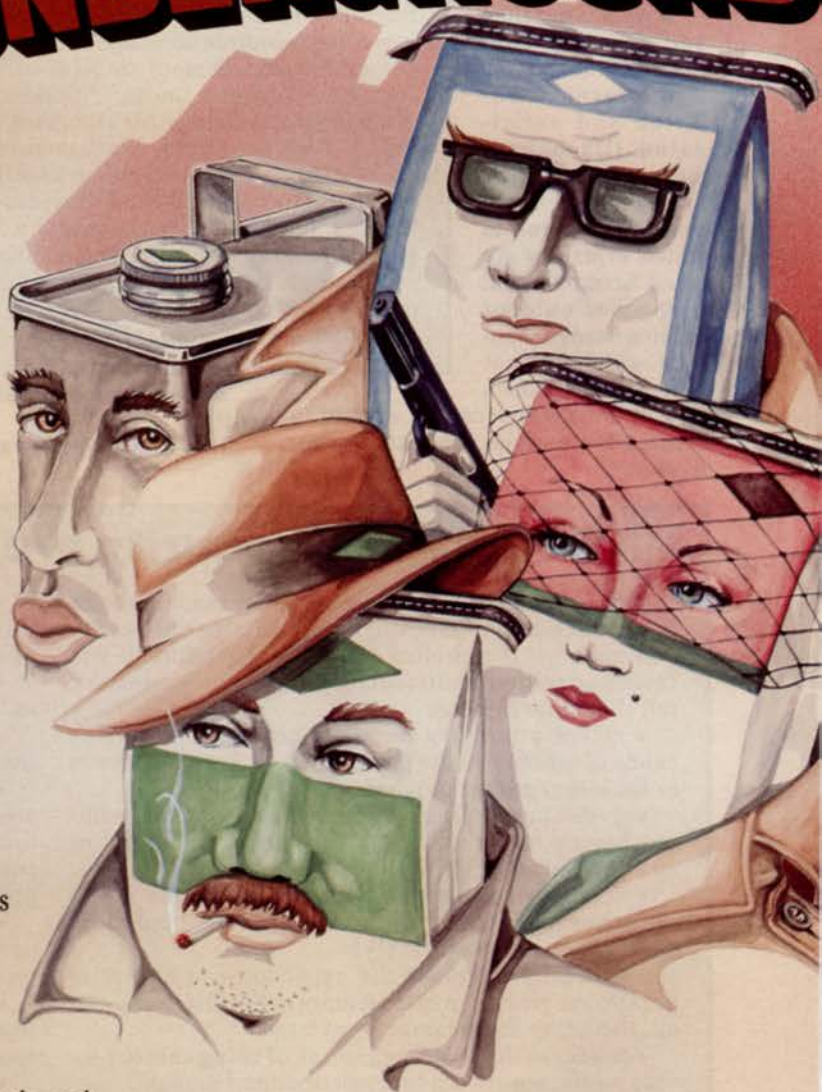
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—Roger Fairways, *Crabgrass Gazette*

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tify area consultants who can assist.

A lighting specialist's first task usually will be evaluating the existing outdoor lighting system for:

- what is installed and how it is controlled,
- present condition and anticipated life expectancy,
- annual O&M costs, the degree to which functions are being accomplished,
- other outdoor lighting needs or benefits which are not now being attained,
- options which can be applied to accomplish various goals and objectives and

Sources

For the astute owner or manager, the very first step in effective outdoor lighting technical management is to obtain more information about lighting and what it can do.

One of the best sources of information is the National Lighting Bureau, which publishes a variety of guidebooks on lighting. Each is written in simple language and is extensively illustrated for easy comprehension. Some of the NLB's titles include: "Getting the Most from Your Lighting Dollar," "Conducting a Lighting Systems Audit," "Lighting Energy Management for Offices and Office Buildings," "Lighting Energy Management in Retailing," "The Energy Saver's Guide to Good Outdoor Lighting."

Each sells for just \$5 and provides discussion on the benefits of lighting, important issues about the type of facilities and instructions about numerous lighting management options.

A complete directory of NLB publications is available without cost by writing to National Lighting Bureau, 2101 L Street, N.W., Suite 300, Washington, D.C. 20037.

- their related initial and life-cycle costs.

It will be difficult to assess with any

program of lighting management can be one of the single most profitable investments that an owner can make. **LM**

degree of precision exactly how certain lighting system improvements will affect other issues, such as reduced tenant turnover. Nonetheless, certain reasonable assumptions can be made and, accordingly, bottom-line values can and should be applied. This approach gives decision-makers a far better data base on which to make decisions.

And, when all is said and done, it likely will be found that effective lighting developed through a

Beauty and security are two lighting effects

Planned lighting can do many things for the landscape. By familiarizing your customers with its many benefits, you may find it can often sell itself. Therefore, if you intend on selling additional lighting to your customers, tell them that lighting:

- makes a building more noticeable to passers-by (some of whom may be prospective tenants, customers or building/project purchaser);
- gives a building a more dramatic appearance without having to invest in any substantial structural or facade changes;
- creates an integrated "wholeness" to the entire project even though it may comprise several buildings of different architectural style;
- generally upgrades the appearance of an entire building or project, making it more appealing to one and all, including the community at large;
- enhances the building's image of being able to provide a safe, secure outdoor environment at night;
- makes it easier for people to find their way at night and quickly identify the proper path to take;
- makes the outdoor parking lot and surrounding areas/walkways more immune from tripping/slipping accidents;
- reduces the likelihood of a tenant or guest being assaulted in the parking lot or other outside areas;
- makes the outdoor parking lot safer in terms of reducing the potential for vehicle-object, vehicle-vehicle, vehicle-pedestrian accidents.
- reduces incidents of vandalism in the parking lot.
- reduces incidents of break-ins to and theft of tenant/guest/customer autos parked outdoors at night;
- reduces incidents of vandalism affecting the building itself (spray paint, broken windows, etc.) and grounds (broken plantings, broken lighting globes, etc.);
- helps reduce the likelihood of building break-ins.
- enhances the ability of passers-by, guards, etc., to spot potential intruders and provide an effective identification to authorities;

- reduces the cost of security patrols around the building and grounds while enhancing their effectiveness;

- lowers exposure to legal liability for problems such as "endangering the safety of an invitee";

- may reduce the cost of liability and other insurances;

- allows you to avoid the uninsurable costs associated with defending a liability action (complying with discovery, responding to interrogatories, attending depositions, being in court, meeting with attorneys, lost productivity and piece of mind, etc.);

- may help you avoid the negative publicity which can flow from assaults and similar incidents on project property or immediately adjacent to it;

- reduces the time required to clear parking lots and roadways from snow and otherwise reduce the cost of snowplowing;

- reduces the frequency and extent of damage caused by the snowplow blade, thus reducing the related costs and inconveniences associated with snowplowing;

- in the case of multi-family residential properties, provides space for a variety of nighttime activities without having to purchase more property or make costly improvements;

- reduces tenant turnover and the associated costs of turnover, such as painting/cleaning, advertising for new tenants, screening prospective new tenants, etc;

- justifies an increase in space rental/lease rates, and or the value of individual spaces or the entire building, due to improved safety/security, better appearance, etc;

- in the case of retail buildings or retail spaces in larger complexes, increases retail sales and, when applicable, increased sales-based rental income, and

- increases the marketability of space (or the entire building) due to improved safety/security, better appearance, reduced tenant turnover, higher rental/lease income, etc.

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Circle No. 143 on Reader Inquiry Card

Landfill crisis may curtail bagging of grass

by William E. Knoop, Ph.D.,
Texas Agricultural Extension Service, Dallas

At least once a week millions of homeowners in the United States set out their garbage for pick up by their local solid waste disposal authority. This garbage, mostly in plastic bags, is usually carried to the sanitary landfill and buried. This process has been going on for years and years seemingly without any significant problems.

There is a significant problem, however, and it has a lot to do with how home lawns are managed.

According to information made available by the Environmental Protection Agency, within the next five to seven years as much as one-third of the nation's landfills may be completely full. By the year 1990, Connecticut may not have any landfill space at all. Illinois may run out by 1993, and new landfill space is not readily available.

Bagging to blame?

The connection between home lawn management and the shrinking landfill space has to do with bagging grass clippings. It's been found that in some of our neighborhoods as much as 50 percent of the solid waste pickup each week is nothing more than grass clippings. In one Texas city of 21,000 homes, during a one-week period in June, it was determined that the citizens placed some 700 tons of grass clippings neatly tied in some 31,000

plastic bags at their curbs for pickup by solid waste disposal.

Bagging grass clippings is primarily a homeowner practice, although some landscape management companies also do it. Anyone familiar with basic turfgrass management principles knows that grass bagging isn't required for the production of high quality turf.

How and where did bagging get started? Many of us grew up with the hand push mower with no bagger and our lawns seemed to get along just fine. Then someone put a catcher on the mower so we didn't have to mow as often and all those unsightly grass clippings that were being left on the lawn were eliminated.

The rotary mower was a natural for bagging. Its under-deck design facilitated the movement of clippings into the bagger. Slowly but surely, bagging grass clippings has become associated with perception of lawn quality. Homeowners generally believe that you must bag your grass clippings in order to have a great lawn.

More frequent mowing

Those familiar with turfgrass management know these statements are not true. After all, how many golf courses bag their clippings? The likely truth is that we've slowly grown a little bit lazy about the way we care for home lawns. Rather than

mow them as often as we should, we tend to mow only once a week. That leaves what some consider an unsightly amount of clippings on the lawn. As a result, the mower has evolved from one that had a simple bagging attachment to a machine with a permanent bagging feature. In fact, it's hard to buy a mower today that doesn't bag!

Changes are needed if the trend of filling valuable landfill space with grass clippings is to be reversed. And homeowner education has to be the No. 1 goal of lawn management firms.

Most homeowners have never been taught how to manage a lawn. They have learned by following their parents' example or from watching neighbors. Most neighborhoods have a lawn expert who's more than willing to dispense advice.

Another necessary change has to do with the lawn mower. We need a machine that will, when the lawn is cut only once a week, chop up the clippings fine enough so they will filter down to the soil surface. Key to this mowing concept must be using a reasonable management approach, including a fertility program that stresses the use of slowly soluble nitrogen and reasonably high levels of potassium.

Study changes attitudes

In a pilot educational program in Plano, Texas, many homeowners said grass clippings couldn't be left on the lawn under any circumstances. There was a general belief that these clippings would automatically cause a thatch problem.

Some 20 homeowners agreed not to bag their grass clippings for one year and to follow a prescribed maintenance program. At the end of the year, the overall reaction was that it was far easier to mow the lawn every five days or so than to mow it once a week and mess with the bagger.

The poorer lawns improved and the good ones stayed the same under the program.

Everyone's cooperation is needed if the landscaping industry is to make these changes. We have helped build this bagging monster, and we must take the lead in stemming the flow of grass clippings that unnecessarily clog our shrinking landfill space. **LM**



As America runs out of landfill space, the practice of bagging grass clippings needs to be reevaluated.

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Circle No. 280 on Reader Inquiry Card

RESEARCH UPDATE

Tall fescues changing for the better

by Robert Shearman, Ph.D., University of Nebraska

Tall fescues are showing continued acceptance as a turfgrass species, particularly since the development of the new turf-types. The new cultivars have even finer texture and lower growth habits than their predecessors.

These new, low-growing types, called dwarf-type tall fescues, can easily be classified into four groups: dwarf-types, turf-types, intermediate-types and forage-types. Presently, the term "fine fescues" is used by many producers and users to describe the new turf-types. This terminology is confusing, since fine fescue and fine-leaved fescue have been used to describe creeping red fescue, chewing fescue, and hard fescue species.

Forage-types

Forage-type tall fescues include cultivars like Alta, Kenhy and Pastuca. Forage-types have been used as turfs with varying degrees of success, depending on the turf's requirements. Cultivars in this group are characterized by rapid leaf growth and vertical elongation, coarse texture, light-green appearance and lack of tolerance to low mowing.

Recent studies at Nebraska have demonstrated that cultivars like Pastuca and Kenhy have high water use rates. They also have intermediate rooting depths and high wilting tendency when maintained under turfgrass conditions. Their high water use rates are associated with rapid vertical elongation rates and open canopies.

Forage-type tall fescues are probably most suited for use in roadside or utility turfs.

Intermediate-types

Intermediate-type tall fescues like Kentucky-31 or Clemfine generally have characteristics like forage-types. But they tolerate frequent close mowing better than cultivars like Alta or Kenhy.

Kentucky-31 has a rapid vertical elongation rate and an intermediate canopy density. Its high water use rates are comparable to the forage-types. But it tends to have a low wilting tendency and produces a very deep root system under turfgrass conditions.

Intermediate-type tall fescues are most suited for low-maintenance turfs.

RELATIVE CHARACTERISTICS FOR SELECTED TALL FESCUE CULTIVARS

Cultivar	Type	Rooting Depth	Wilting Tendency	Drought Avoidance	Type	Topgrowth	Clipping Yield	Verdure
Kenhy	Forage	Intermediate	Very High	Low	Forage	Very High	Very High	Low
Pastuca	Forage	Shallow	Very High	Low	Forage	High	Very High	Low
Kentucky-31	Intermediate	Very Deep	Low	Very High	Intermediate	High	Very High	Intermediate
Houndog	Turf	Intermediate	Intermediate-Low	Intermediate	Turf	Intermediate	Intermediate-Low	Very High
Mustang	Turf	Deep	Intermediate	Intermediate	Turf	Intermediate	Intermediate	High
Trailblazer	Dwarf	Deep	Intermediate-Low	Intermediate	Dwarf	Very Low	Low	Very High
Monarch	Dwarf	Intermediate	Intermediate	Intermediate	Dwarf	Very Low	Low	High

*Based on University of Nebraska turfgrass research.

Turf-types

Turf-type tall fescues include cultivars, such as Rebel, Mustang and Adventure (actually the list of these cultivars is quite long). Turf-types are characterized by: lower leaf elongation rate, slower vertical elongation rate, finer texture, greater canopy density and a darker green color than the forage- or intermediate-types.

These cultivars differ in their water use rates, but generally rank medium to low in water use as a group. They differ in their rooting depths and in their ability to avoid drought symptoms.

Adventure produces a very deep root system, has a very low wilting tendency. It also tends to avoid drought symptoms better than other cultivars tested. Rebel, on the other hand, produces a shallow to intermediate root system, has high wilting tendency and low drought avoidance, but recovers rapidly after periods of drought stress.

The lower water use rate associated with the turf-types is closely associated with slow vertical elongation rates and dense canopies.

Turf-types tend to have high to very high wear tolerance ratings. Their wear tolerance is associated with high verdure density, high shoot density, high load-bearing capacity and high cell wall production.

Turf-types also have a higher thatching tendency than the forage-types. Thatching tendency is closely associated with cell wall production and verdure density.

Dwarf-types

Dwarf-type tall fescues are characterized by cultivars, like Monarch, Trailblazer and several experimental lines that are likely to be released soon.

These cultivars have many of the same characteristics of the turf-types, but tend to have even slower vertical elongation rates and finer texture.

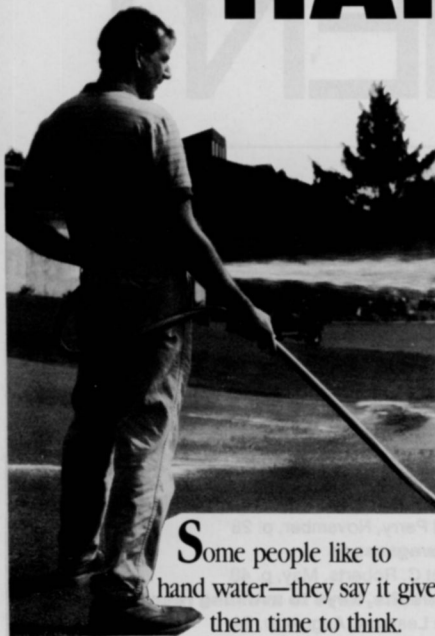
Dwarf-type tall fescues are characterized by clipping-yield-to-verdure ratios of less than one. In fact, some dwarf-types produce half the amount of clippings as they do verdure. Since verdure is the green vegetation beneath the mowing height, this characteristic is very desirable to turfgrass managers concerned about reducing mowing but also maintaining desirable turf.

Water use for dwarf-types ranked from medium to low. Their water use rate was closely associated with high verdure density and low vertical elongation rate. Dwarf-types differ in root production and distribution. This difference in root production and distribution is important because shallow, nominal rooting has been associated with dwarf-types in other grass species. Dwarf-type tall fescues had cultivars with root production and distribution as great or greater than some of the intermediate- and turf-types.

Improvements are being made rapidly with turf-type and dwarf-type tall fescues. Turfgrass managers should pay close attention to turfgrass research information developed in their area. This information will allow turfgrass managers to identify cultivars with the best potential for use in their area.

Many of the tall fescues are currently being evaluated in the National Tall Fescue Test. Data from these trials are available through your local researchers and industry representatives. Use all of the available information to determine the best cultivars for your intended use. **LM**

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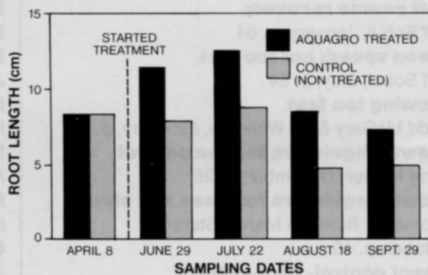
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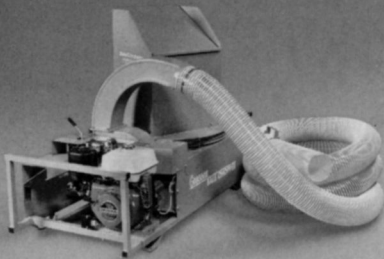
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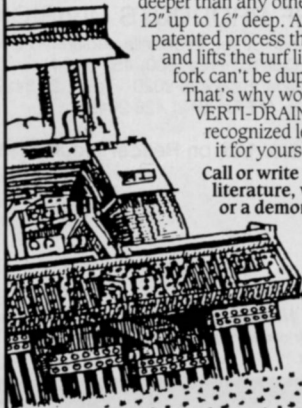


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