Dick, ProTurf already has a 15-0-30 High K fertilizer for fairways. Why did you feel you needed something for greens?

"On greens, you want a fertilizer with a very small particle size. Much smaller than our fairway product designed for the big rotary spreaders."

Why does particle size make a difference? "The smaller particles disperse evenly from the spreader, filter down into the turf, and disappear when you water. There's less chance they'll affect a putt or stick to shoes and get tracked around."

That sounds good for the golfers. "Superintendents will like it, too. In addition to being small, each particle is homogeneous. So, even at half the regular application rate, there's no chance of getting the kind of speckling you might see if you used a coarse blend. And more particles per square inch produces a more desirable, uniform greening response."

"We developed this new version of 15-0-30 High K fertilizer especially for greens. And golfers."

Dick Westfall, Scotts Research project leader (Fertilizer R&D), talks about new High K Greens Fertilizer.

Now tell me why High K will be good for my greens. "High potassium levels have been found to enhance turf performance, particularly under stress conditions—improving drought hardiness, resistance to disease, and wear tolerance. There's also evidence that high potassium reduces winter kill in bermudagrass."

Why is there so little nitrogen? "To prevent over-stimulating top growth. For example, High K Greens can be used at double rates to build potassium levels in sand greens and you'd still be applying only 1 pound of N per 1,000 square feet. Or you can use it at regular rates on any greens that are on a low nitrogen diet. It can also be used at any time of the year."

Anything else we should know about ProTurf High K? "If you like what it does for fairways, you'll love what it does for greens."


Circle No. 155 on Reader Inquiry Card.
Don’t be. Nightlighting is being used for a whole slew of applications; security is only one segment of a colorful, growing part of landscaping.

by Jeff Sobul, assistant editor

Thirty years ago, nightlighting was being used solely to keep from getting mugged in the parking lot or to keep little Johnny from being attacked by the Boogie Man while he was trying to fall asleep.

Well, little Johnny grew up. And so did nightlighting; to the point that it’s an entirely new dimension for landscapers with a little imagination.

William J. Locklin, a licensed electrical contractor and electrical engineer, literally created the industry when “a hobby got out of control,” he says. He formed his company, Loran, Inc., in 1960, and began to market the concept of low-voltage (12-volt) lighting.

Cost was not a factor in creating the low-voltage market, Locklin says. Indeed, electricity prices were negligible. He began because there was an empty niche in the market. “There was nothing to compete with it (12-volt lighting),” he says. “There still isn’t.”

Convincing everyone of this was not so easy. Locklin says that he used to go to colleagues and say “I have 12-volt lighting,” and they’d give him a “That’s nice—what-the-hell-is-that?” look. “But in the last 10 years the industry’s come into its own,” he observes.

Locklin cites a number of reasons for the industry’s slow start but recent rapid growth into an approximately $75 million annual business.

In the post-World War II era, thou-
sands of small homes were built to “get the soldiers out of the trenches and into homes,” Locklin says. Little emphasis was put on landscaping. The home was merely a place to live, nothing else.

But through the 1950s, as Americans became more affluent, homeowners began taking a little more interest in their homes. “People were placing a much greater emphasis on their homes,” Locklin says. The lawn care and landscaping industries blossomed and flourished, and as the idea became more widely accepted, so too did landscape lighting.

Other factors were involved as well. Before 1960, Locklin says, few homes were built with outdoor electrical outlets. When these became part of the building plan, the possibility for outdoor lighting did also.

But even more importantly, “we’re afraid of what’s in the dark,” Locklin notes. “It’s kind of a nice feeling to have that light.”

**Lighting takes root**

Once landscape lighting became accepted, its growth was rapid. From simple beginnings have come major advancements in technology and landscape concepts.

In the beginning, single light sources—sometimes nothing more than a tractor headlamp—were used. Now, says Locklin, the industry has developed quartz halogen multi-mirror light sources with controls for dimming and remote switching.

While sophisticated equipment is good, it is not always best. Simple equipment will also do just as well depending on the landscape design circumstances (see chart). Much more important than the equipment itself is how the equipment will be used.

**Take a good look**

The landscaper must take into consideration a number of factors when planning the installation.

Space relationship is a major consideration in the design planning. Walls, hedges, fences, buildings and trees have to be taken into consideration, as well as what lighted areas will be used for. Lighting levels for lighted areas should be in scale with the areas and their uses. Unless a homeowner wants to use it for recreational purposes, a garden shouldn’t be floodlit. Proper lighting can create a stunning visual effect.

Other factors like contour and perspective must also be considered carefully. And other possibilities can include specifically highlighting one subject, such as a statue in a garden.

**Personal touch**

The light must invariably fit the sub-
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APRIL 1987/LANDSCAPE MANAGEMENT 55
### Plant materials and lamps criteria

**EVERGREEN**

<table>
<thead>
<tr>
<th>Foliage density</th>
<th>Viewer distance</th>
<th>Recommended lamps</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN</td>
<td>CLOSE</td>
<td>Low wattage 1/F mercury vapor lamps</td>
<td>When flowers are not important</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PAR 38 and compact fluorescent lamps</td>
<td>When flower and branch structures are nice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blue-white lamps</td>
<td>When branches and leaves are important</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Combination of incandescent, fluorescent, and mercury vapor lamps</td>
<td>When foliage, trunk and flowers are important; switch based on season</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>MID-DISTANCE</td>
<td>Same approach as when CLOSE, but increase wattage</td>
<td>Check plant material textures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quartz and compact fluorescent lamps</td>
<td>Same</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Same approach; increase wattage and number</td>
<td>Check plant material textures, color of flower</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use blue fluorescent lamps</td>
<td>For greenery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use Chroma 50</td>
<td>For greenery and background</td>
</tr>
<tr>
<td>COMPACT</td>
<td>FAR</td>
<td>Mercury vapor PAR 38</td>
<td>Only for far and very dark greens</td>
</tr>
</tbody>
</table>

**DECIDUOUS**

<table>
<thead>
<tr>
<th>Foliage density</th>
<th>Viewer distance</th>
<th>Recommended lamps</th>
<th>Remarks</th>
</tr>
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<tbody>
<tr>
<td>OPEN</td>
<td>CLOSE</td>
<td>Incandescent PAR 38 in combination with blue-white lamps</td>
<td>For structure and flowers, for greenery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blue fluorescent</td>
<td>For fences and background</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Same approach, increase watts</td>
<td>Check colors and textures</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>MID-DISTANCE</td>
<td>Combination of fluorescent with incandescent lamps</td>
<td>Small and medium size gardens; check colors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mercury vapor 1/F color corrected lamps</td>
<td>For trees in background</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Combination of mercury vapor and incandescent</td>
<td>Have two circuits for seasons</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chroma 50 and blue-white incandescent</td>
<td>For backgrounds including flowers</td>
</tr>
<tr>
<td>COMPACT</td>
<td>FAR</td>
<td>Use high-watt quartz lamps</td>
<td>For large areas and big trees; check colors and textures</td>
</tr>
</tbody>
</table>

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**Speaking the language**

The landscape lighting industry has only become an influence on landscaping in the last 10 years. Here is a short dictionary of nightlighting terms, with a little help from William Locklin and Loran, Inc.

**Lighting has three basic techniques:**

**Downlighting**: a natural and efficient manner of lighting, much like sunlight or moonlight. Sources are directed down through trees or plants and are hidden.

**Uplighting**: The fixture is placed on the ground and directed up through plant material.

**Backlighting**: a subtle form of lighting. Backgrounds such as walls and fences are softly illuminated. Plants and trees are silhouetted against the lighted backdrop.

From these basic techniques a number of different combinations can be made to serve various functions. They include:

**Safety lighting**: one of the most common functions of outdoor lighting. Lights can illuminate walkways, steps and unexpected hazards or dark areas. Downlighting is the most common method used for this.

**Security lighting**: an offshoot of safety lighting. It can be used effectively as a defense against intruders. With proper timing controls, such as photoelectric cells, safety lighting can give the impression that someone is home.

**Mirror lighting**: effective for use with dark-bottomed pools or ponds. Lighted areas on the opposite side from the viewer can create a similar effect to that of moonlight reflecting off the surface.

**Highlighting**: creating a focal point by lighting it a bit more intensely than other areas, drawing visual interest.

**Skeleton lighting**: for use especially during fall and winter, up-lighting or backlighting bare tree skeletons can create a dramatic effect.

**Cross lighting**: two light sources opposite each other focused on one object cross at the object to create a visual focal point.

**Underwater lighting**: (for landscape lighting only) colored lenses and a current can create a stunning visual effect in clear water of ponds or non-swimming pools.
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Circle No. 216 on Reader Inquiry Card
When Edward Thompson first came to Oberlin (Ohio) College as landscape manager, 108 different types of lights were being used.

Many of the lights used 400-watt mercury vapor bulbs, sometimes on double-headed fixtures. In effect, they created black holes, with pedestrians going from incredibly bright areas to virtual darkness. Human eyes couldn't adjust fast enough to the change.

On top of that, lights were burning out and pieces were breaking. Replacements weren't always available, and Thompson often had to dig up building plans just to figure out what type of lights he was dealing with. The town of Oberlin had the same problem.

A solution was definitely needed as was cooperation between the town and college.

**Standardizing**

It took six months for Thompson to convince the city government that aesthetic light fixtures could be both functional and effective. "The real pain and agony was getting things standardized," he comments.

But eventually, standards were agreed upon. That was three-and-a-half years ago.

In that time, the entire plan for fixture and bulb replacement has been about 25 percent completed. The first major overhaul came in the town square, which was the main subject of the original proposal for light renovation.

Tappan Square's 13 acres are surrounded on three sides by the college, the fourth by the town. A number of events and festivals held in the square require versatile lighting.

The town needed the capability to turn off part of the system, while leaving some of the lights on. This was especially true for events like Ohio Ballet performances, which didn't require lights in the performance area but elsewhere during performances.

**'Beyond lights'**

What resulted was a system that "went beyond lights themselves," says Thompson. Control panels were necessary to keep the lights operating up to specifications, and extensive work was done underground laying the system. For the square alone, the system cost about $124,000.

Halogen RSL-3 high-pressure sodium lights have replaced the mercury bulbs. The fixtures can handle bulb wattages of 35, 70 and 150. The 150-watt bulbs give off 21,000 lumens compared with 24,000 from the 400-watt mercury lights. Wattage savings far outweighs losing 3,000 lumens.

Work has been completed on a number of main streets in the city and on campus. "It's kind of fun in the areas it has developed to see the same fixtures on campus and then in the town square," Thompson comments.

He projects that, based on previous progress, if things go well, complete renovation of the light fixtures should be finished within 10 years.

—Jeff Sobul
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