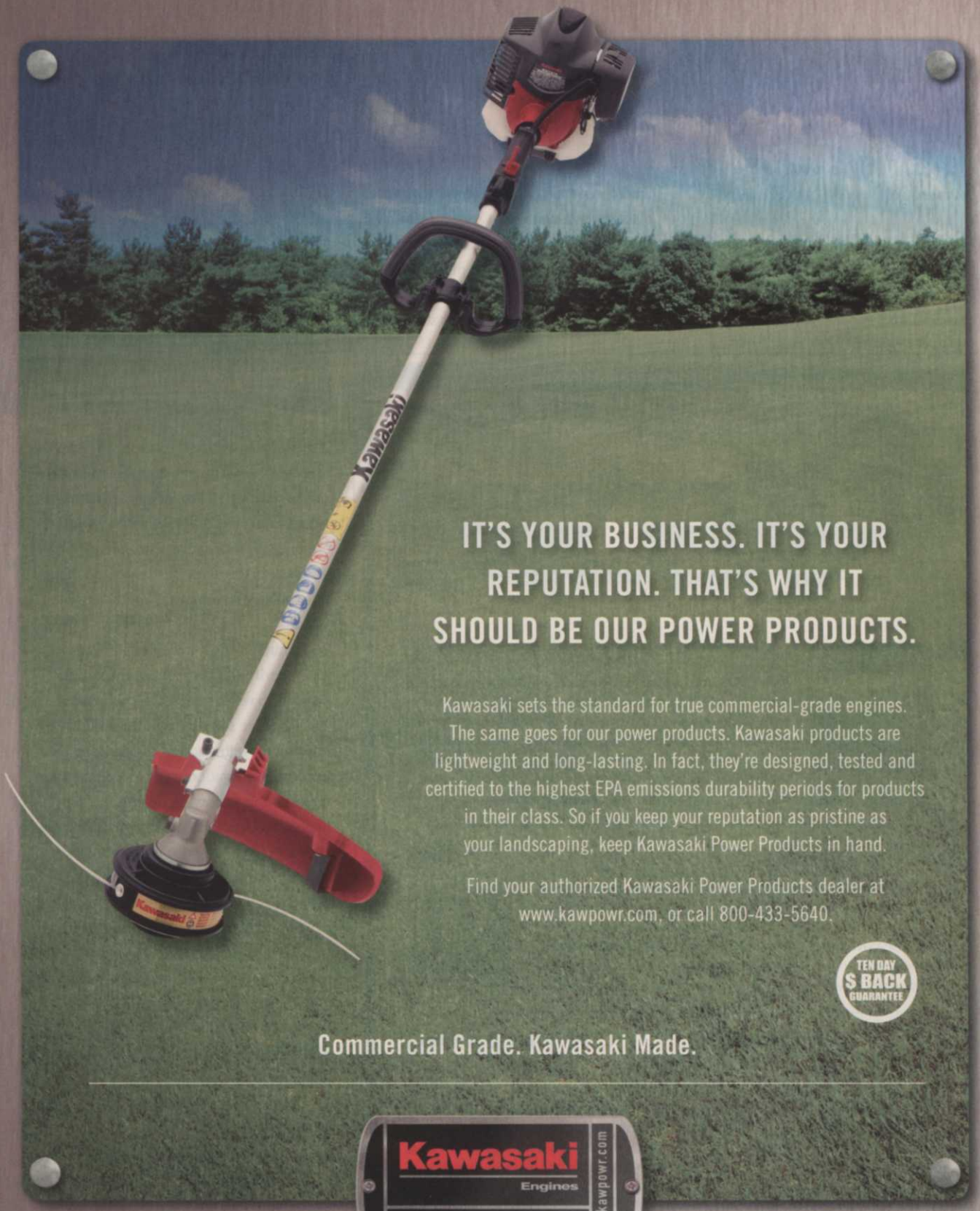

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Circle 141

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SUMMER PATCH

Pathogen: *Magnaporthe poae*

Primary hosts: Kentucky bluegrass, annual bluegrass and fine leaf fescues

Environmental conditions conducive to disease development: A root-infecting fungus that is in continuous association with the turf. Symptoms can be misdiagnosed as drought stress. The symptoms of summer patch typically start out as small 1- to 2-in. patches where the plants die from the leaf tip down. The affected areas can expand from 3- to 12-in. in diameter and coalesce over time. Summer patch symptoms are typically more severe on sunny exposed slopes or areas surrounding walls, sidewalks or driveways.

To minimize the severity of summer patch aerify the turfgrass in the spring and fall to reduce thatch accumulation and improve soil drainage through the alleviation of compaction. Again deep and infrequent irrigation will help, along with maintaining a mowing height of 2.5 to 3 inches, and implementing a complete balanced fertility program with more than 75% of the fertility applied in the fall months. Acidifying nitrogen sources such as ammonium sulfate and sulfur-coated urea have shown to reduce summer patch disease severity when used in an overall management program.

BROWN PATCH

Pathogen: *Rhizoctonia solani*

Primary hosts: Perennial ryegrass, tall fescue

Environmental conditions conducive to disease development: hot days (80 to 90 F), warm nights (65 to 75 F), high relative humidity, soil moisture and increased leaf surface wetness duration, primarily early summer through early fall.

Patches generally occur in the size of a

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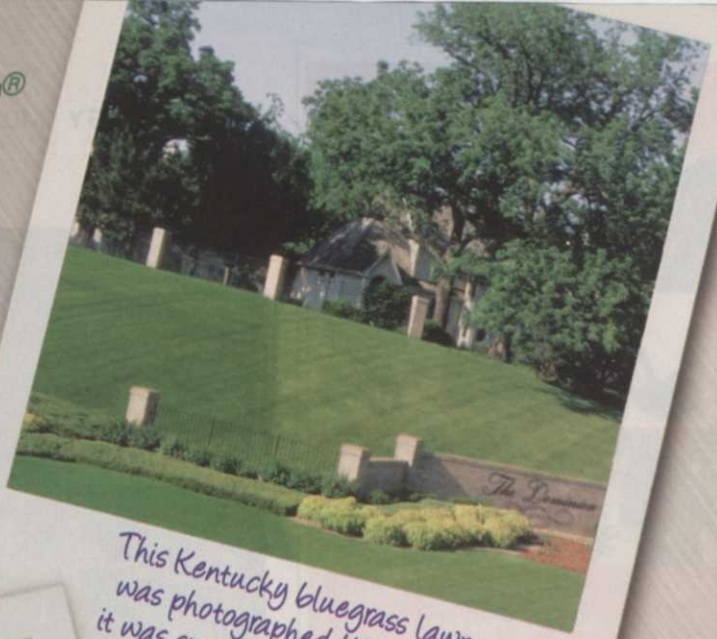

This Kentucky bluegrass lawn was photographed 48 hours after it was sprayed with Ferromec

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Zoysiagrass photographed 48 hours after spraying with Ferromec

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Circle 143

BROWN PATCH

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softball up to 2 ft. in diameter. Observing the turf in the early morning under high humidity, you may observe abundant foliar mycelium in a circular patch. Around the border of the circular patch, the mycelium may take on a grayish cast — called 'smoke ring.' Close inspection of the leaves may show tan, water-soaked lesions that are irregular in shape and tend to have a chocolate brown border of the lesion. Overtime, patches will coalesce into large areas of blighted turf.

Once evening temperatures consistently reach into the mid to upper 60's F and day time highs are in the mid to upper 80's F, coupled with rain and showers, start looking for brown patch disease. Irrigate turf in the early morning to prevent increasing the leaf wetness duration of the turf canopy. Put down enough water to wet the root zone, but you don't want to keep the thatch/foliage wet over extended periods of time. The majority of your fertility program should be applied in the fall and limited in the spring after green up. Consider making light applications of 0.25 to 0.5 lb. N per 1,000 sq. ft. every two to four weeks during the summer months. This could be helpful.

GRAY LEAF SPOT ▶

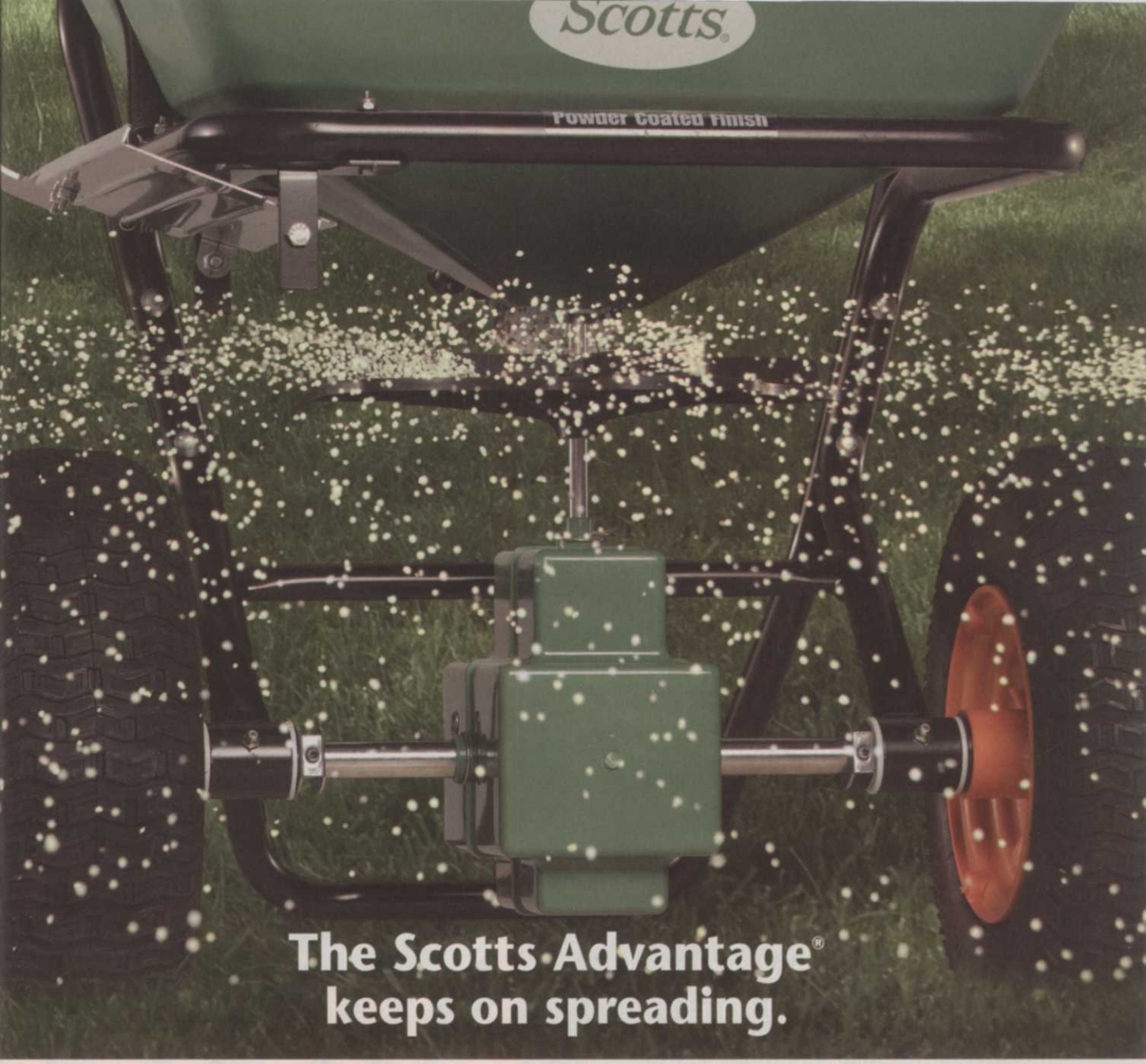
Pathogen: *Pyricularia grisea*

Primary hosts: perennial ryegrass, tall fescue and St. Augustinegrass

Environmental conditions conducive to disease development: This disease is one of the last to be seen in lawns (mid-July through early-October) following summer months of high heat and humidity. It is usually more severe following prolonged periods of drought stress.

Fungicides may be necessary during the first year for the establishment of St. Augustine lawns from sprigs or sods since nitrogen and water requirements will be higher and will lead to conditions conducive for the disease. In perennial ryegrass and tall fescue, brown patch can be present at the same time as gray leaf spot. A preventive fungicide program would be the best choice for managing gray leaf spot as well as brown patch. LM

— The author is a turfgrass scientist with Jacklin Seed by Simplot



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Circle 146

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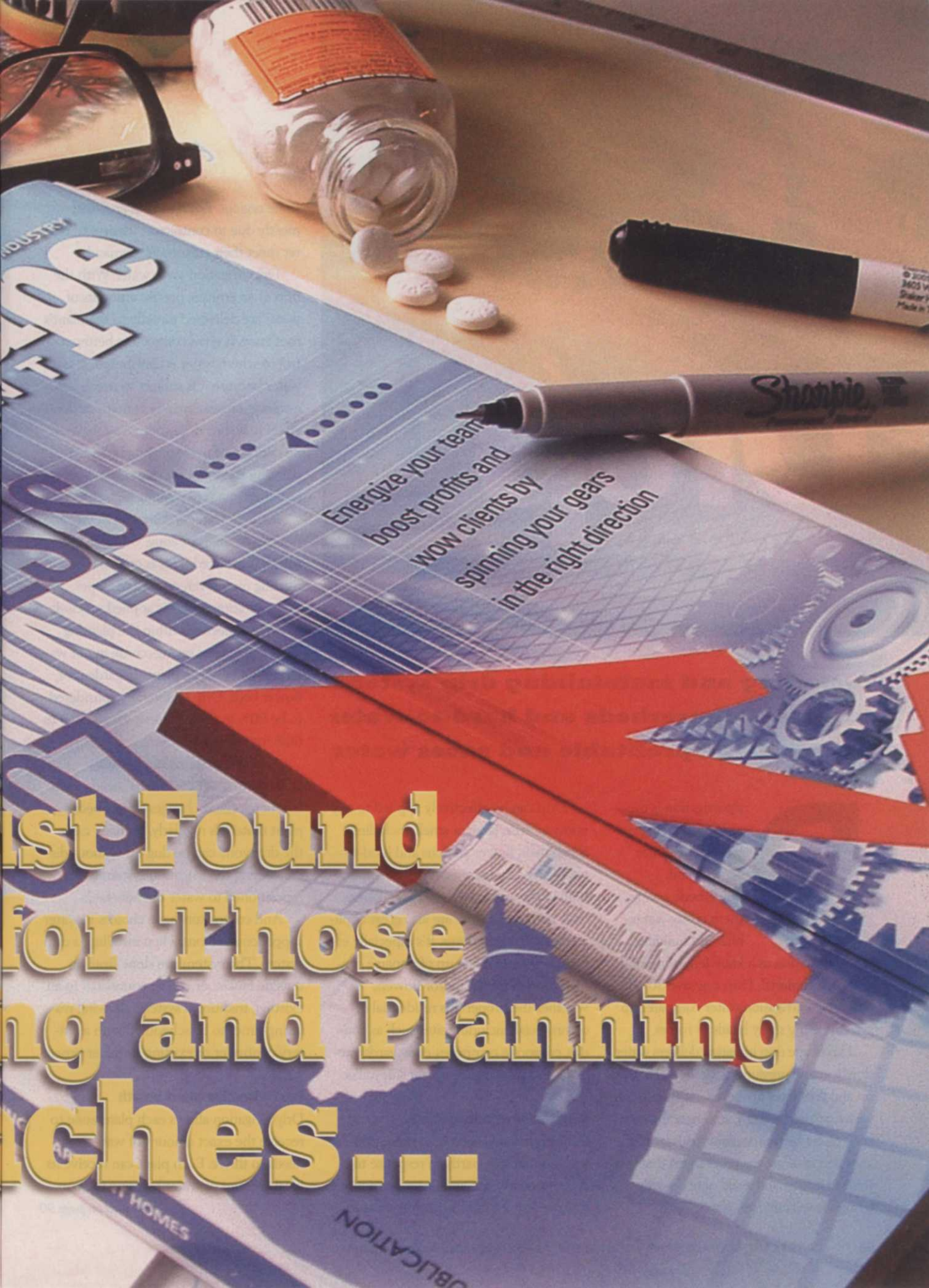

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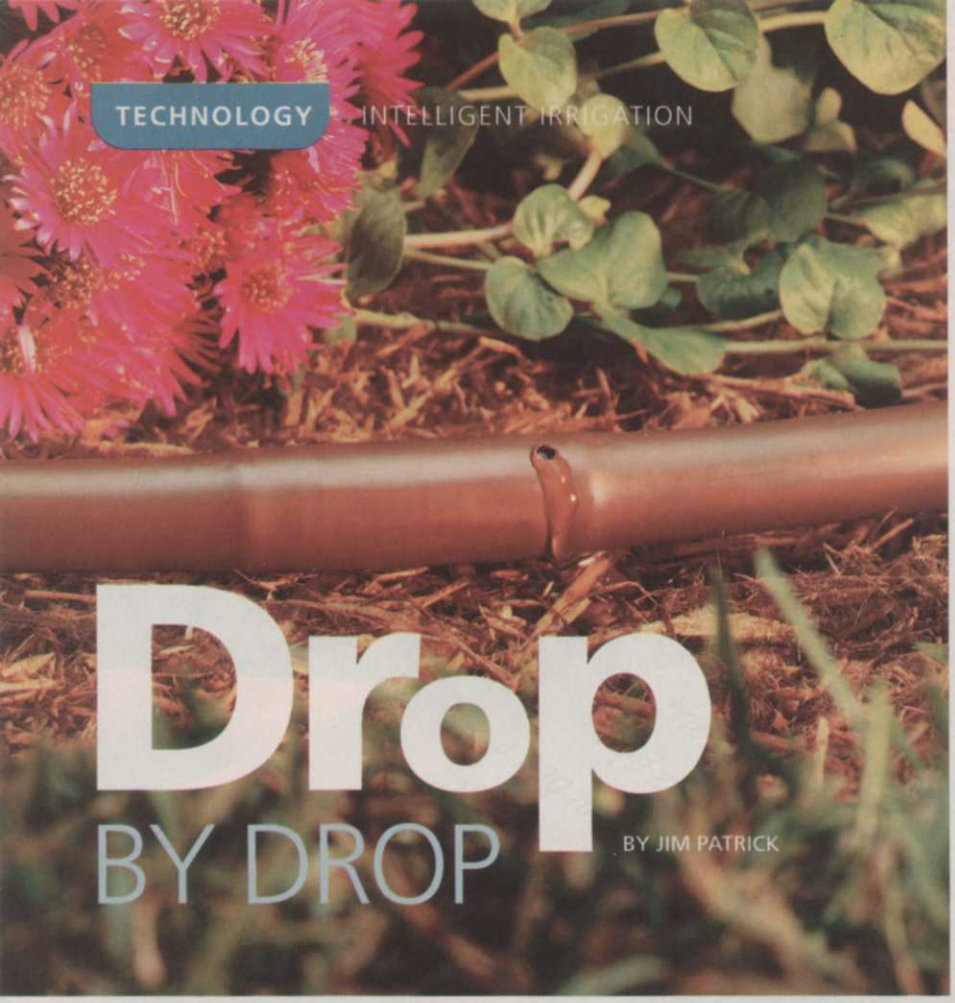

Drop BY DROP

BY JIM PATRICK

Installing and maintaining drip systems in clients' flowerbeds and hard-to-water areas can be profitable and saves water

Drip irrigation is the answer to giving customers' healthier gardens and flowerbeds, saving them costly water bills and building your reputation as a knowledgeable landscape professional. Drip can save 30% to 65% of the irrigation water compared to systems using spray heads or rotors.

Landscape drip irrigation delivers water slowly, at low pressure (typically at 15 to 50 psi and flow rates measured in gallons/hour versus gallons/minute), at or near the root zone of the landscape plant material. It allows you to target the precise area that you want to irrigate and avoid unnecessarily watering the soil between plants.

Drip can be effectively applied to any non-turf area, large or small, including shrub beds, flower gardens and hard-to-water areas. Areas sensitive to overspray, high traffic areas, windy areas and areas with mixed plantings are also great applications for drip systems. It's especially effective in areas made up of a sparse configuration of plants and/or flowers, whether the property is residential or commercial, including sites such as condos, corporate campuses, courtyards, medians and planting areas near sidewalks.

Benefits of drip irrigation

Drip irrigation is becoming more popular with contractors, partly in response to drought conditions and water restrictions It is the only form of irrigation allowed in some regions. But it's use is growing, mostly due to contractors' desires to better meet their customers' demands.

Drip irrigation saves water. With the drip of an emitter, precise amounts of water are delivered directly to the plant's root zone. It gives contractors better control of where water is distributed. It saves water because it is subject to much less evaporation since windy conditions don't affect it as they does spray. And there is no concern of over-spraying intended planting areas and soaking sidewalks, cars, buildings, roads or parking lots.

Because water is delivered slowly and directly to the root zone, water or soil runoff is reduced. This is critical when irrigating on uneven ground or slopes.

In addition, water is applied precisely where it is needed within the planting area. The biggest savings come in not watering soil between plants in gardens or flower beds. Drip is generally considered to be 90% to 95% efficient versus 30% to 60% for sprays and rotors.

Also, drip systems can be easily changed to meet customers' needs, such as when a client changes flower beds or plant materials regularly. In many cases the drip zone can be dug up without disconnecting the irrigation system and repositioned to water the new beds.

And contractors have choices in water supply connections when installing a drip system. The system can draw from an outside faucet, or can be connected to an existing, traditional system, allowing watering times to be scheduled with a battery controller or existing sprinkler timer.

Cost-effective plant health

Drip irrigation allows each plant zone to receive the exact amount of water it needs to thrive. Each plant can receive its ideal amount of water by using the cor-

continued on page 90

Four less reasons to think about global warming in the Southeast.

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Circle 172

Match **products** to **sites**

The care you take in selecting and installing products for each site will result in healthier, more attractive landscape plants and reduce system maintenance.

Take into account the flowerbed's or garden's water requirements, the climate, the soil and whether the irrigation zone has dense or sparse plantings.

Don't make the mistake in the design of using the same product for all applications. Different plants require different amounts of water. For dense plantings, inline emitter tubing is usually used due to its ease of use. However, polyethylene tubing with pop-up micro-sprays or PVC pipe with poly-flex risers and bubblers can also be used. For sparse plantings, polyethylene tubing with emitters or PVC pipe with poly-flex risers and emitters can target each plant and not water the soil in-between the plants.

Emitters come in many different flow rates and styles. Some emission devices are designed specifically for dense plantings and are considered broadcast emission devices. These include in-line emitter tubing, micro-sprays, misters and pop-up low-volume sprays. Pop-up sprays with low-flow nozzles are often used in annual flowerbeds, for instance.

Other emission devices are better suited to sparse plantings, but can also be used to supplement broadcast emission devices in dense plantings when a certain plant needs more targeted watering. These include single-outlet emitters, multi-outlet emitters and bubblers. These emitters come in a range of flow rates (from 0.5 gph to 24 gph) and inlet styles (barbed, threaded, spiked).

The plant type, the soil and the type of installation will determine which emitter to choose. To satisfy the different water intake requirements of plants in one irrigation zone, emitters can distribute different volumes of water using the same run time. — *JP*

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rect size and amount of emitters, bubblers or micro-sprays.

Different drip products can distribute the water to the foliage itself or only to the soil, depending on what is best for a specific plant. Overhead water can create unsightly brown spots on some flowers, while it can aid the health of other plants. Drip allows you to tailor watering to meet the requirements of all plant types.

Installing and maintaining a drip irrigation system saves time and money. Start with a good design. It will dramatically improve the installation process. Typically they're easier to install than spray systems, but can return a nice profit for contractors nevertheless.

Design flexibility

Installation of drip irrigation systems offers lots of flexibility. Flexible, polyethylene tubing conforms to individual and unique plant areas. PVC pipe, used with traditional systems, can be used as tubing with drip systems as well, but flexible tubing is advantageous because it can be placed in any direction and can be curved.

Contractors need few special tools to install and maintain drip systems. The basics of hydraulics and flow are similar for drip systems compared to traditional systems. Also, replacing parts because of vandalism shouldn't be a concern. Emitters, the small devices that control the flow of water going to the soil, and drip line typically remain relatively hidden from view in flower beds or gardens near high-traffic areas. Some emitters can pop up and down, retracting flush with the grade when not in use and keeping them out of sight. Other products make it easy for contractors to install tubing below grade.

System design tips

More thought is required up front when designing a drip system compared to a traditional system to achieve maximum water distribution efficiency. Again, the goal is to deliver the proper amount of water to the root zone of the plants, which will require smart product selection, proper design, pressure regulation and filtration. Because drip requires low volume and low pressure, every drip irrigation system should include filtration and pressure regulation.

Pressure regulation ensures that the pressure entering the system doesn't exceed the maximum operating pressure of drip irrigation. Filtration keeps large particles from clogging downstream components, and lessens the chances of smaller particles from impeding the water flow from the emission device. Yes, periodically the filter will need to be cleaned, but self-cleaning filters exist that are ideal for certain applications. These virtually eliminate maintenance. Complete control zone kits are also available on the market.

Hydraulic calculations are necessary in drip irrigation designs, just as they are with traditional systems.

Size you header correctly for the amount of flow required, and take pressure loss into account when you calculate the lateral lengths of your tubing runs. Pressure should remain between 15 psi and 50 psi everywhere in the system after the pressure regulator.

A landscape drip design guide is a helpful tool that shows maximum lateral lengths and header sizes based on flow rates, helping determine calculations.

Find examples by visiting **www.rainbird.com/drip/literature/index.htm#appguides**. LM

— The author is the marketing manager for Rain Bird's Landscape Drip division.