TECHNICAL REFERENCES

for Landscape Professionals

Interior Landscape Design

by Nelson Hammer, ASLA

LSM-BK-800 .....$65.00

This reference discusses the basic principles of interior landscape design and covers such topics as tree planting, designing large planting beds, balcony plantings, cost estimation, natural and electric lighting, irrigation and more. Particularly useful to those in the field are five case studies which demonstrate design and construction processes for an interior landscape project. 288 pages, hardcover.

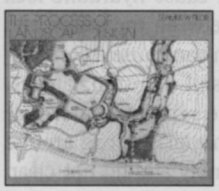
Urban Trees

A Guide for Selection, Maintenance, and Master Planning

by Leonard J. Phillips, Jr.

LSM-BK-801 .....$37.00

This complete guide to urban tree care and planning covers everything from new methodologies for cataloging existing trees to selecting the right species for your climate and site to running a high-power, cost-saving maintenance program and much more. Landscape architects, urban foresters, municipal administrators and students will learn how to develop effective municipal street tree master plans, take street tree inventory, choose the best trees for a community, care for trees and promote public awareness. 273 pages, hardcover.



The Process of Landscape Design

by Seamus W. Filor

LSM-BK-802.....$40.00

Five completed projects illustrate the general principles followed by landscape architects in developing designs from concept to implementation. Each case includes a summary of the principles which generated the design; a study of the architect's response to special conditions; a description of the stages of development; and an assessment of performance since completion. The five projects cover: landscape planning, urban regeneration, new town development, university campus and recreational development. 160 pages, hardcover.

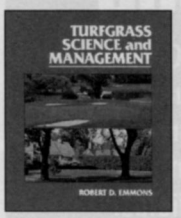
Landscape Architecture

A Manual of Site Planning and Design

by John Ormsbee Simonds

LSM-BK-803 .....$73.00

Written for landscape architects, architects, planners and engineers, this book features descriptions of proven procedures, includes useful charts, tables, checklists and teaching diagrams, and offers innovative ideas and fresh thoughts of direct application in the design studio, drafting room and field. 331 pages, hardcover.



Turfgrass Science and Management

by Robert D. Emmons

LSM-BK-805 .....$37.50

Intended for turfgrass managers and students, this text discusses the establishment and maintenance practices used by successful turfgrass managers and reviews relevant scientific theory as well as practical management skills. 451 pages, hardcover.

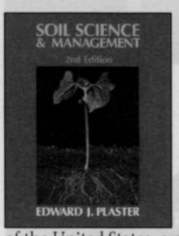
Landscaping Principles & Practices

4th edition

by Jack E. Ingels

LSM-BK-806 .....$29.95

This introductory text leads the landscaping student from the basic principles of landscape design and graphics, through methods of installation and maintenance, to the business methods of beginning the business, bidding and cost estimating. 401 pages, hardcover.



Soil Science & Management

Second Edition

by Edward J. Plaster

LSM-BK-804 .....$39.95

This text introduces the reader to the soil and water resources of the United States, presents soil science theory as it applies to soil use by the grower, shows how soil is used by farmers and horticulturists, and covers the basics of soil and water conservation. An instructor's guide, summaries of each chapter and review questions are provided. 514 pages, hardcover.

Ornamental Horticulture

Science, Operations & Management
2nd Edition

by Jack E. Ingels

LSM-BK-807 .....$40.95

Offering a balanced study of ornamental horticulture as an applied science, a craft, a profession and a business, this introductory text reviews plant structure, the role of soil, the plant classification system, growth regulators, reproduction, and pests and their control. Floral design; the interior use of plants; landscape design, installation and maintenance; turf selection, establishment and maintenance; and techniques of plant propagation are also examined, along with the floriculture, nursery and landscape industries, greenhouse and nursery production techniques and business considerations. 554 pages, hardcover.

Landscape Plants

Their identification, Culture, and Use

by Ferrell M. Bridwell

LSM-BK-808 .....$49.95

The text is invaluable in assisting students, nursery workers, landscape architects, educators and others in identifying landscape plants. More than 450 ground covers, vines, shrubs, trees, grasses, palms and bamboos are depicted in full color with physical descriptions, geographic growth zone information, pest problem data and other details. 560 pages, hardcover.

Managing Turfgrass Pests

by Thomas L. Watschke, Peter H. Dernoeden & David J. Shetlar

LSM-BK-766 .....$69.95

Emphasizing the philosophy of minimizing pests through well-defined and organized cultural practices, this book contains specific recommendations for a number of pests. Turfgrass weeds, diseases, insects, invertebrates and vertebrates are described and cultural, biological, mechanical and chemical solutions are provided. 361 pages, hardcover.

Call 1-800-598-6008 • *Outside the U.S. call 216-826-2839*

ADVANSTAR MARKETING SERVICES • 7500 Old Oak Blvd. • Cleveland, OH 44130

CODE: 949027

Minimizing your time for diesel engine maintenance

by Tom Kane

■ Although a tractor is build for year-round performance, mid-season maintenance checks are needed to ensure minimal downtime repairs.

Maintenance checks are particularly important in the hot weather, which taxes an engine. Checks are also important during the peak season, when engines are running 8 to 12 hours a day.

Air system—Diesel engines use 8,000 gallons of air to every gallon of fuel. In contrast to a gas engine, no throttle plate or choke plate restricts air flow into the combustion chamber of a diesel engine. The three most basic and important steps to maintain the air system are:

1) Check the air cleaner element every 100 hours.

2) Periodically check for leaks and cracks.

3) Examine the hoses for hardness, cracking and loose connections.

It is also important to use care when replacing a filter. Improper replacement can cause an engine to ingest dirt and dust which can lead to wearing out pistons and rings, and cause valves and rings to stick.

Be certain the caked dirt that builds up on the filter does not fall into the hose as the filter is removed. When replacing the filter, the sealing gaskets on both ends must be in proper position to direct the air through the filter. Check that it is securely fastened and free from any cuts, nicks or distortions.

Before your filter is in place, look in the downstream host to be certain no appreciable accumulation of dust or dirt can be found. If so, check for defective clamps or hoses.

In determining when to clean and/or replace a filter, keep in mind that a somewhat dirty filter actually operates more efficiently than a brand new one, as the dirt already trapped in the filter prevents the smaller particles from entering the system. Therefore, establish cleaning and replacement schedules according to your equipment's operating manual.

And remember, cleaning the engine itself with a high-pressure washer or hose must be done carefully. If water enters the intake system, it can cause hydraulic lock by filling the space between the piston and the head. This in turn can cause a connecting rod to bend or result in piston damage. To assure the engine remains water-free while cleaning, fasten a plastic bag around the entire filter assembly and do not clean with water while the engine is running.

Fuel system—Cleanliness and quality are the two most important fuel factors. Dirt and water are the chief contaminants of diesel fuel. Diesel fuel actually lubricates the injection pump and nozzles, which is one reason a diesel engine will outlive a gas engine. Water, even the slightest amount, can cause bacterial growth on the fuel filter element. Rusting problems are also created by water, beginning with corrosion of valves and plungers. Operation of injection nozzles and injection pumps can be disturbed—again by only the smallest amount

Prevent Crabgrass With Team And Even Your Hardest Customer Will Crack A Smile.

Dependability is what lawn care and landscape professionals look for in a preemergence herbicide. And dependability is what you get with the time proven Team* herbicide. Since 1985, Team has proven itself effective at stopping a broad spectrum of troublesome grassy weeds, especially crabgrass.

With the rock solid performance of Team, you can expect consistent, season long control.

Because nothing, pound for pound, prevents crabgrass better than Team, you know you've got a preemergent you can depend on to bring a smile to the face of any customer.

For further information on Team, or any other product in the extensive line of DowElanco products, give us a call at 1-800-352-6776. Always read and follow label directions.

Team®

DowElanco

*Trademark of DowElanco

of water.

To prevent condensation from forming in the fuel tank, keep it full at all times when not in use. In addition, condensation and other types of contamination can enter the system from the fuel storage tank.

Quality is another key for diesel fuel users as fuel contamination is a major concern. The following fuel factors must be considered to keep on top of this potential problem:

- Cetane number: reduces lag time. A longer lag time means a harder start engine, especially in cold weather. It is also more likely to smoke and knock.
- Flash point: the temperature at which fuel ignites. If too low, white smoke will appear.
- Cloud point: approximately 10-15° F. when wax fuel appears. As long as fuel system components do not plug, the fuel is usable.
- Sulfur content: should not exceed 0.5 percent. Levels above that may contribute to acid build-up on the lubrication system.

Proper storage of diesel fuel is imperative. The following guidelines should be followed:

1) Be certain fuel is stored with as little moisture as possible.

2) Be certain fuel is stored where there are no dramatic temperature changes.

3) Only store what can be used in a reasonable amount of time. Storage tanks should be kept full, too.

Diesel fuel engines will smoke at the initial start-up. However, smoke that continues after a complete warm-up may be an indicator of potential problems. A diesel engine's condition can often be read by the color of its smoke, as such:

White smoke, Type 1: water vapor or steam that appears but doesn't linger. This indicates a cooling system leak.

White smoke, Type 2: caused by low temperature. If it is a low ambient temperature, the smoke will disappear. If it is a low combustion camber temperature, the puffs of white smoke will continue and may indicate low pressure, ring or piston problems, or leaky valves.

Black smoke: caused by unburned fuel. This may indicate nozzle problems of injecting more fuel than can be properly burned with the given horsepower and time.

Gray smoke: caused by excessive amount of oil in the combustion chamber. It indicates worn rings or valve guide wear.

Refer to your operator manual for specific tractor or equipment models. In general, the fuel filter should be checked and cleaned every 100 hours, and changed every 400 hours.

—The author is national training manager for Kubota Tractor Corp.

Treating oak leaf spot

■ During the past two years, leaf spot (*Tubakia dryina*) has increased in container-grown oaks, according to Dr. Jim Strandberg, plant pathologist at the Central Florida Research and Extension Center.

The fungus produces small lesions and a blight that deforms the plant's leaves. It affects many species of oak, including the popular laurel oak.

Tubakia spores reproduce best in humid, damp weather. At one time, this devastating disease was common only in Eastern states. Severe oak leaf spot losses, however, recently have been recorded in several Southeastern nurseries.

Strandberg has studied the fungus since 1989. In addition to investigating its biology, he has so done a comparison of control products.

"Traditional control methods include copper fungicides," says Strandberg. "But these aren't always effective because they're non-systemic. Oaks may produce several growth flushes a season, so there's a constant chance that young, susceptible foliage may need protectant sprays.

"Ornamental nurseries are at particular risk because sprinkler irrigation spreads tubakia spores," he adds.

Strandberg tested seven fungicides in three classes: systemic, copper and non-systemic. Efficacy was determined by measuring the percentage of leaf area damage (indicated by "LAD") on new foliage of infected one-year-old laurel oaks. Overhead irrigation was performed nightly for two months, and fungicide applications were made bi-weekly.

"All the fungicides reduced leaf damage," Strandberg notes. "Only the systemic fungicides reduced the damage enough to satisfy the strict requirements of nursery production."

For his test results, see accompanying chart below.

FUNGICIDE EFFICACY ON OAK LEAF SPOT

Percentage of lead area damaged (LAD) on new growth of one-year-old Tubakia-infected trees.

	June 14		July 25	
Fungicide	Rating	%LAD	Rating	%LAD
Banner	1.8	6.4	1.6	5.1
Bayleton	2.3	9.3	3.3	33.2
Copper hydroxide	1.6	14.7	2.7	24.4
Daconil	2.5	20.3	3.4	31.8
Control	3.5	17.6	4.3	51.4

Source: Standberg, 1991

Most People Are Ecstatic At How Effective Confront Is At Making Their Broadleaf Weeds Disappear.

With Confront* herbicide, lawn care and landscape professionals know they're covered. Because no postemergent herbicide controls broadleaf weeds better.

Confront brings you a new standard of broadleaf control on both warm and cool season turfgrasses.

For over 35 different species of broadleaves, from dandelions and clover to oxalis and ground ivy, Confront is the one herbicide that won't let you down.

For further information on Confront, or any other product in the extensive line of DowElanco products, give us a call at 1-800-352-6776. Always read and follow label directions.

Confront®

DowElanco

*Trademark of DowElanco

TECH CENTER

A cost-saving way to control fire ants in your landscapes

by Bill Cobb
and Pat Cobb, Ph.D.

Fire ant mounds can be found in secluded areas.

■ The cost of controlling red imported fire ants (RIFAs) can be decreased by using a program similar to the one used at the Colonnade in Birmingham, Ala.

RIFAs are among the most expensive landscape pests to control in the South. Although damage to turf is minimal, fire ants usually build mounds that detract from a landscape's appearance. Mounds are also a reminder that their occupants can inflict painful stings on visitors who disturb them.

Usually, a whole property is scouted regularly and visible mounds are treated with a contact insecticide. This takes time that could be spent on other jobs. Also, colonies that are still small and do not project above the turf are usually overlooked. This results in additional mound treatment throughout the season.

The following study represents an attempt to minimize costs (including labor) while maximizing RIFA control in a commercial landscape.

It is based on the fact that RIFA winged reproductive females and males fly, mate and new colonies are established during warmer months, primarily in the spring. Mated queens can fly several miles if assisted by a tail wind. However, they do not always move that far.

Background—The Colonnade is a 106-acre business complex encompassing 54 landscaped acres. The landscape is managed by professional horticulturists. Red imported fire ant control before 1992 consisted of mound treatment only, with acephate (Orthene TT&O). One person needed at least one working day weekly to treat mounds.

The Colonnade grounds and adjacent unmanaged land was scouted in June 1992 to map areas most heavily infested with RIFA. Six highly visible acres that were the most infested were chosen for the study.

It was also an area that, based on previous records, labor and insecticide costs for RIFA control could be calculated.

Three perimeter plots were selected for treatment and three were left untreated. Plots ranged from 2,000 to 6,000 sq. ft. Strips 30 feet wide were treated only in 1992 in adjacent unmanaged areas from which RIFA were believed to migrate into the landscape.

The process—In 1992, Affirm fire ant bait (avermectin) was applied to treatment plots and strips with a Solo backpack mist blower equipped with a converter for applying granules. In 1993, Award fire ant bait (fenoxycarb) was applied similarly. Both baits were applied at 1 lb./acre. Ants were observed picking up bait particles in the treated plots and moving from outside areas into treated areas to collect bait.

Both baits disrupt colony reproductive potential. Worker ants depend on immature stages to digest solids into liquids, the only form of food on which they can feed. Once "immatures" become adults, they can no longer digest solids into liquids and are thereafter themselves dependent on other immatures for digesting solid food. Immature "digesters" feed liquids into workers; workers subsequently feed liquid into each other and into the queen.

Visible mounds in bait-treated areas were treated with a contact insecticide (acephate as Orthene TT&O) within five days after bait applications. This was done to eliminate stinging worker ants quickly rather than waiting six to eight weeks for them to die. Applications were made in June 1992 and August 1993.

Treated plots with the six-acre area totaled 16,000 sq. ft. Not all RIFAs were eliminated, but they were removed from critical locations (treated test plots and surrounding areas). In fact, six acres of control was achieved by treating perimeter areas only. Control costs for the six acres are summarized in Table 1.

What we learned—We learned three important lessons about RIFA control from this experiment:

1) RIFAs could be mapped. The maps

continued on page 28

TABLE 1

Year	Insecticide $$	Labor $$	TOTAL
1991	$129.50 (10 lb.)	$85.00	$214.50
1992	$77.70	$51.00	$128.70
1993	$12.95 (2 lb.)	$8.50	$21.45

—Source: Dr. Cobb

If You Want To Know How Long Gallery Works To Prevent Broadleaf Weeds, Ask Someone With Time On Their Hands.

After applying Gallery* preemergence herbicide, you've got about 6 to 8 months of good solid waiting before you'll spot the emergence of any of over 95 different broadleaf weeds. Even the tough ones like spurge, dandelion and plantain.

In fact, Gallery is the only preemergent on the market today that's designed to prevent so many broadleaf weeds, yet is safe over the top of all turfgrasses, and over 400 different species of ornamentals.

So now that you have a little extra time on your hands, maybe you can get around to digging up even more business.

For further information on Gallery, or any other product in the extensive line of DowElanco products, give us a call at 1-800-352-6776. Always read and follow label directions.

Gallery

DowElanco

*Trademark of DowElanco

Ants were observed picking up bait particles in the treated plots and moving from outside areas into treated areas to collect bait.

represented areas of highest concentration, which included surrounding unmanaged sites from which migration probably occurred. In this case, the landscaped areas were also among the most highly visible parts of the property.

2) Perimeter treatments were adequate. Total property treatment, or even treating the six-acre area, was not necessary for acceptable control (based on number of visible mounds).

Baits controlled colonies, including young, not-yet-visible colonies. This eliminated the need for continuous mound treatments throughout the season.

The contact insecticide applied to visible mounds after bait application controlled workers quickly. RIFA workers already present are excellent predators on new queens that fly into an area. Perhaps by leaving a few colonies in less visible areas, new queens were controlled.

3) Monitoring, mapping and perimeter treatment reduces control costs.

RIFA control is insecticide-dependent because of the lack of naturally-occurring predators and pathogens. Amounts of insecticide applied were reduced even more with perimeter treatments. Labor costs were reduced because—even though weekly scouting continued—the need for weekly mound treatments was eliminated.

The future—Excessive rainfall in 1994 resulted in RIFAs getting a slow start. Fire ant colonies increased dramatically in many areas of the South during late summer and fall. However, only minimum treatment was done at the Colonnade because of the few colonies throughout the season. The 1995 program will be determined after the property is again monitored, mapped and "acceptable" (threshold) levels of RIFA colonies are determined.

—Bill Cobb is operations manager for Environmental Design Group, Birmingham, Ala. Dr. Cobb is professor and extension entomologist at Auburn University, Ala.

Some Things Are Just Made to Work Better in the Dark.

Disease resistant, shade tolerant and beautiful, **Glade** Kentucky Bluegrass is one variety you can't help but fall in love with.

Call your Jacklin Seed marketing representative at 800-688-SEED and find out why. It could be the beginning of a beautiful relationship.

JACKLIN GREEN SEAL

The Green Seal marks Glade as a world premium turfgrass variety.

Glade

Kentucky bluegrass

U.S. Plant Patent 3151 License in Canada No. 2133

JACKLIN Seed Company

5300 W. Riverbend Avenue • Post Falls, Idaho 83854-9499
208/773-7581 • 800/688-SEED • TWX 5107760582 Jacklin PFLS

THE LAWN INSTITUTE SEAL OF APPROVAL

Circle No. 111 on Reader Inquiry Card

BEHOLD PE