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AS WE SEE IT

TERRY McIVER, MANAGING EDITOR



Expect the little mistakes, even if you hire the best

Of the three jobs I had during high school, the best one was assistant greenskeeper at a public golf course.

It was the best job a kid could want; outdoors all day using equipment I'd never before seen or operated, and the pay was good. There was even time for a little excitement.

Some days into the job, my partner and I were riding in a utility vehicle (called a 'Cony'; do they still make those?) across the number two fairway. We were goofing off as we rode, laughing over the way he impersonated one of our bosses, an old-timer whose mission in life that summer was to make sure we stored the hoses correctly (this course had no underground irrigation system).

We were distracted and didn't see a long ditch—it was a creek if there was rain—dead ahead, running through the middle of the fairway. The vehicle plunged down and I went flying through its makeshift, plexiglass windshield and plywood frame (this was one well-used machine).

We watched as the vehicle, now imbedded in the landscape, leaked oil onto a patch of fairway. We were addled, afraid (what if the guy who got me this job found out?), looking around for witnesses. This was one of those moments you never forget, like the time you were stung by a swarm of bees or had dirty creek water poured over your head by a bigger, much nastier kid down in the neighborhood woods. (Ever happen to you? Be glad it didn't.)

We were called in front of some city hall bigwigs (this was a city-owned course) and, as nearly as I can remember, struggled through a few clumsy minutes trying to explain what had happened. Try as we might to explain otherwise, they insisted we were goof-offs. It's true we weren't being alert, but we certainly weren't looking to cause a wreck.

We were suspended a week without pay.

The rest of the season passed without incident; just a scolding from the club pro some time later when I drove the same truck onto a tee.

But as I compare myself to some of the other guys who worked there that summer, I was one of the best. They were right to keep me.

- I was always on time.
- I learned quickly, and became a pretty good greens mower.
- I looked presentable, unlike a couple guys who helped destroy the super's faith in "the kids of today." But even metal heads needed to work.

- I did what I was told, which was a lot better than trying to look busy.

- I didn't drive yet, or own a car, so I had to eat lunch at the course, which meant I never came back late from "tooling around."

- Most importantly, I knew when to keep my mouth shut, and what not to do.

The work we had to do wasn't very complicated. The super's always been the one with the tough job.

Still, there's no sense in asking for trouble. Three months can seem like three years with bad help.

So, when you look for high school or college age help this summer, look for someone who you think has an understanding of the responsibility involved.

Someone like...me.

And remember: cut them some slack for the little mistakes.

Accidents *will* happen.

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LANDSCAPE MANAGEMENT

'WE KNOW YOUR TURF'

APRIL 1994 VOL. 33, NO. 4

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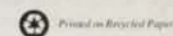
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LANDSCAPE MANAGEMENT (ISSN 0894-1254) is published monthly by Advansstar Communications, Inc. Corporate and editorial offices: 7500 Old Oak Blvd., Cleveland, OH 44130. Advertising offices: 7500 Old Oak Blvd., Cleveland, OH 44130; 1333 N.W. Norcross, Seattle, WA 98177. Accounting, advertising production and circulation offices: 131 West First Street, Duluth, MN 55802. Subscription rates: one year, \$39, two years \$58 in the U.S.; one year \$66, two years \$99 in Canada. All other countries: one year \$130, two years \$195. Current issue single copies (pre-paid only): \$4 in the U.S.; \$7 in Canada; elsewhere \$12; add \$3.50 per order for shipping and handling. Back issues, if available, \$10; add \$3.50 per order for shipping and handling (pre-paid orders only). Office of publication: Advansstar Communications, Inc., 131 W. First St., Duluth, MN 55802 and additional mailing offices. Copyright © 1994 by Advansstar Communications, Inc. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher. Canadian G.S.T. Number: R-124213133.

POSTMASTER: Send address changes to—Landscape Management, P.O. Box 6198, Duluth, MN 55806.
Revised date: November 30, 1993.



Printed on Recycled Paper



Printed in the U.S.A.

ASK THE EXPERT

DR. BALAKRISHNA RAO



Plants to transplant in spring and fall

Problem: Which landscape plants transplant easily in the spring and fall? Is there an ideal season for transplanting? (Michigan)

Solution: The following information should be helpful. However, many landscapers may perform their landscaping in the fall as it may fit their work schedule. Generally, we may be better off to plant in the spring in the northern U.S. Fall transplanted plants may be more susceptible to low temperature injury.

Woody plant	Ease ¹	Season ²
Fir.....	1-2	Early spring
Maple.....	1-2	
Buckeye, horsechestnut.....	2	
Alder.....	1	
Downy shadblow.....	2-3	
Birch.....	2-3	Early spring
Am. hornbeam.....	4	Early spring
Hickory, pecan.....	3-4	Early spring
Catalpa.....	1	
Hackberry.....	1	
Katsura-tree.....	2	
American redbud.....	2	
Fringetree.....	2	Early spring
American yellowwood.....	2	Early spring
Flowering dogwood.....	3	Early spring
Hawthorn.....	1-2	
Russian Olive.....	2	
Beech.....	2-3	Early spring
Ash.....	2	
Ginkgo.....	2	Early spring
Common honeylocust.....	1	
Kentucky coffeetree.....	2	
American holly.....	2-3	Early spring
Walnut, butternut.....	3-4	Early spring
Goldenraintree.....	2	Early spring
Laburnum.....	2	Early spring
Larch.....	2	Early spring
American sweetgum.....	2-3	Early spring
Tuliptree.....	2	Early spring
Osage orange.....	1-2	
Magnolia.....	3	Early spring
Apple, crabapple.....	1-2	
Tupelo, black gum.....	3-4	Early spring
American hophornbeam.....	4	Early spring
Sourwood.....	2-3	Early spring
Corktree.....	1	
Spruce.....	1-2	
Pine.....	1-2	
Planetree, sycamore.....	1	
Poplar.....	1	Early spring
Cherry, plum.....	2-3	Early spring
Golden larch.....	2	Early spring
Callery pear.....	1	
Common pear.....	1	
White oak.....	3-4	Early spring
Scarlet oak.....	2	Early spring
Shingle oak.....	2	Early spring
Pin oak.....	1	
Sumac.....	1	
Willow.....	1	Early spring

1 Rated according to ability to regenerate new root system and tolerance to stress following transplant. 1= transplants most readily; 4= most difficult to transplant.

2 Early spring signifies both early spring or late winter before growth starts. No season listed indicates plant can be transplanted with care almost any time.

Source: E.B. Himelick, *Tree and Shrub Transplanting manual*, ISA, 1991

Managing fire ants

Problem: What's the best way to manage fire ants? (Texas)

Solution: The queen must be eliminated before the colony dies.

The entire colony communicates through the passing of chemicals in food. Foraging ants—10-20 percent of the total colony, can only ingest liquid food. The foragers pick up "baits" and bring them to young larval ants that digest the solids to liquids for the forager/worker ants and the queen. Proteins secreted by the larvae stimulate egg production from the queen. Thus, fast-acting poisons kill the foragers, protecting the ants and queen inside the mound. Solid toxic foods are fed directly to the larvae, killing them and thus reducing their effect on the queen.

Quick-killing materials such as Dursban will only reduce the visible worker population until the queen can produce more workers. Unfortunately, this visible reduction pleases clients but will not eliminate the colony.

The best strategy for control is a broadcast bait treatment followed within three to seven days with a mound treatment. Spring and fall are the best times for this approach. The colonies actually migrate upward and downward (two to six feet) in the soil, depending on moisture and heat. The ants are closer to the surface right after a rain and during the cooler parts of the day. Do not disturb the mound when treating, as this signals the workers to relocate the queen and other ants.

You can use products such as Dursban, Orthene, Amdro or Award. Reports indicate that, if used properly, Amdro and Award will provide long-lasting results. Both these products are slow-acting, bait-containing materials. This is why it takes one to four weeks with Amdro and three to five weeks with Award baits.

(*ED. NOTE: refer to the February, 1993 LM for more on fire ant control.)

Controlling golden oak scale

Problem: How can we manage golden oak scale? (Ontario, Canada)

Solution: Use horticultural oil as a dormant treatment in the spring. Oil will suffocate and kill the egg mass. Insecticides such as Sevin, Orthene or Dursban can be used later against crawlers. The crawler emergence may vary from region to region. In a normal year in northeast Ohio, we treat crawlers around mid-May.

Try looking for these from mid-May to the end of May. If the crawlers are found, begin your treatments. Provide two to three more treatments about 10 days apart. This approach should help manage the golden oak scale problem on oaks.

In addition, consider providing proper fertilizing and watering as needed to help improve plant health.

Dr. Balakrishna Rao is Manager of Research and Technical Development for the Davey Tree Co., Kent, Ohio.

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Pesticide containment and storage

The government is issuing stricter and stricter guidelines for pesticide handling and storage. Here are steps LCOs can take to assure compliance.

by Kirk A. Hurto, Ph.D.
TruGreen/ChemLawn

■ When designing pesticide storage and mixing/loading areas, special consideration must be given to site development and local and state building codes. Although facility designs used in agriculture will work, professional lawn care operators need to consider modification and additional design factors.

Design considerations—Your turf-grass facility should have separate storage areas for pesticides, fertilizers and seed. Pesticides for ornamentals or total vegetation management should also be stored away from other fertilizers and chemicals.

Service trucks and other spray equipment should be filled in a warehouse with sealed floors that are diked and sloped toward a recycle sump located in the mixing/loading area.

Fertilizer storage requirements for a lawn care operator will vary with the size of the operation and its proximity to suppliers.

Typically, larger lawn care operations need 2500- to 10,000-gallon fertilizer storage tanks. Smaller lawn care operations may store dry fertilizers in separate unheated, storage buildings and transport product as needed to the mixing/loading area.

Many states require secondary containment around bulk fertilizer storage tanks. This is usually achieved with "elephant rings," diking or curbing to separate fertilizer storage areas from pesticide storage areas.

Granular fertilizer should be stored on pallets, on pallet racks where space is limited. Pesticides should be stored in secure areas in the warehouse.

Fill staging area—The fill staging area should be located over a sloped, concrete floor that drains into a recycle system sump.

The fill area for larger operations must have high capacity, metered water-pumping capability. Water supply lines must be separated from fill lines to avoid contamination. A fixed air gap or appropriate backflow prevention device is usually required by local and/or state codes.

Pesticides are loaded in several

ways, depending on the size of the operation, product formulation and handling traits, and/or handling requirements specified on the product's label.

Recent changes to pesticide label requirements will accelerate the conversion to closed delivery systems or promote products packaged in container-less water-soluble packets.

The fill staging area must have good illumination and non-porous mixing tables. Using chemical eductor systems and container rinsing devices can reduce pesticide residue in the fill area and employee exposure to materials. The area should also have a designated space for maintaining pesticide use log sheets and storing safety equipment, pesticide labels and MSD sheets.

Mixing and loading—Procedures used to fill lawn service vehicles may differ because of the volume of product used and the number of vehicles involved.

Most lawn care operations are designed as a drive-through with either overhead fill booms to add water and fertilizer solutions to the spray tank, or a series of cam-lock hose fittings to transfer product mixtures directly into the spray tank under pressure.

Many operations use a chemical eductor system to reduce applicator exposure to concentrates and to allow products to be dispensed at waist height.

Fewer injuries occur where chemical eductors are installed. Chemical eductor systems require a venturi pump, properly sized for the water flow rates and water volume required. Eductor systems mix products better, which reduces incompati-



For golf courses, consider this model built by Rick Tegtmeier (see sidebar).

bility between pesticides or pesticides and fertilizer solutions.

Smaller lawn care operations may not require as much automation, but the fill area design still must reduce worker exposure while mixing and loading pesticides.

Recycling systems—Recycling systems allow products to be contained and reused if inadvertently released while filling vehicles. They can also collect rinsates from washing operations.

Traditionally, recycled water is used as a substitute for 10-20% of the fresh water needed for loading operations.

Recycled water generated from mixing/loading pads should not be used in filling pesticides used on trees and shrubs. This will reduce risk of ornamental plant damage. Where applicators are involved in industrial weed control, fill staging areas should be separated from both lawn and tree/shrub fill areas.

It is recommended to wash service vehicles over the recycle pad using high-pressure low-volume power washers and low foaming truck soaps. Also, where possible, washing vehicles where pesticide residues are not a factor should be sepa-

rate, to reduce pesticide rinsate water requiring disposal.

Washing operations to remove road film should be distinguished from operations to remove spray residues from the same vehicle if they are not performed over the containment pad. Besides reducing rinsate water disposal problems, there is less accumulation of sludge in the recycle sump.

You should routinely clean sludge from the sump. If it has an agitation system to resuspend colloidal matter, residue accumulation is manageable. In some states, the sludge—if properly dried—is considered non-hazardous solid waste. However, in other states, it is assumed to be a hazardous solid waste (under RCRA's TC Rule) until tested.

EPA guidelines recommend disposing of solid waste from recycle system sumps on sites where the pesticides contained in the residue are approved for use. These are reasonable for agricultural purposes, and



Shelved control products are safe, secure and easy to inventory.

many golf course operators but is more difficult for lawn care operators to follow in urban areas.

—*Re-written from proceedings of the Pesticide and Fertilizer Containment Symposium in St. Louis, February, 1994. Used with permission of Dr. Hurto and MidWest Plan Service. For a copy of "Designing Facilities for Pesticide and Fertilizer Containment," phone (800) 562-3618. Request publication MWPS-37.*

BUY OR BUILD: question of time vs. money

■ Different superintendents, blessed with different budgets, invariably pick different ways to meet pesticide storage requirements.

Rick Tegtmeier, superintendent at Elmcrest Country Club, Cedar Rapids, Iowa, built his pesticide storage building a few years ago. He had his reasons, as he explained to the club's greens committee:

1) Employee safety. "The area where we had stored products had shelves adjacent to the mowers. People passed them every day, and chemicals were being knocked off shelves. It was unsafe."

2) To reduce environmental exposure. "Whenever we had a spill, there was no way to contain it. It always seemed like you could smell chemicals (in other places)."

3) "Fire department officials warned us they would not be able to enter the old building with chemicals inside."

4) Better inventory control.

Tegtmeier and his crew built a 10-by-6-by-9-foot building at a cost of \$11,500.

The building has vinyl siding, six inches of insulation and a steel door. Footings are 48 inches deep.

The floor is six inches thick, and the inside dike is one foot wide by 10 inches deep; 30 percent of the room's liquid content would be contained in a worst-case spill.

A concrete ramp allows for easier loading and unloading.

Ventilators run across the top, and it has a gabled, asphalt shingle roof. Tegtmeier says good flow-through ventilation is the most important feature. Vents were placed near ceiling height for best hot air flow, and so that fresh air is unobstructed by containers or pallets. An electric vent switch is turned on before anyone enters the building.

Tegtmeier says he would do some things differently if he could. He'd make the building larger—10-by-20 feet—with two doors, and a ramp on the inside as well.

Steve Cook of Wakonda Club in Des Moines, Iowa, took over a few months

after the club had bought a pre-fabricated building. He sees these advantages to buying a ready-made storage facility:

- 1) Time savings.** Installation took only two hours.
- 2) Already approved to meet all building codes.**
- 3) Can place anywhere there is a flat surface, even on gravel.**
- 4) One-year warranty.**
- 5) Easy to modify, add-on.**

Cook says the 16-by-10-foot building at Wakonda cost \$14,500 three years ago. Total cost, with labor, concrete pad and transportation, was \$17,000. He says \$20,000 is a realistic figure for anyone looking for a similar building today.

The versatility feature may come in handy soon. Cook says storage needs have already outgrown the building.

—*Terry McIver*

What you should know about hazardous waste

■ If your company routinely uses pesticides, you should be familiar with the amendments to the Resource Conservation and Recovery Act (RCRA) that govern the handling, transportation and disposal of hazardous waste generated by Small Quantity Generators (SQGs).

Disobeying RCRA can result in penalties up to \$25,000 *per day* per violation.

Defining it—A waste is considered hazardous if it has one of the following characteristics: ignitability, corrosivity, reactivity or toxicity, or if it is listed in the Code of Federal Regulations.

The EPA says that pesticides include such specific wastes as:

- unusable or unidentifiable materials;
- rinse water used to clean pesticide application equipment;
- containers that hold (or held) pesticides, unless such vessels have been cleaned in accordance with regulations or label instructions; and/or
- soil or other material contaminated from pesticide spills.

Equipment which is being repaired or refurbished can also generate hazardous wastes, such as cleaning solvents, engine degreasers, carburetor cleaners, rust removers, used lead acid batteries, and paint thinners.

The EPA also says that the diluents used with pesticides give them hazardous waste characteristics.

You are one—You are a SQG, according to RCRA, if you generate between 220 and 2,200 lbs. of hazardous waste per month. Included are rinsate water, the weights of containers, and all solvents. Not included are empty containers, wastewater that has been legally discharged into a publicly-owned treatment facility, and lead acid batteries that are being recycled or reclaimed.

Those who generate *less* than 220



lbs. of hazardous waste a month must follow other provisions of RCRA:

- they must know exactly which of their wastes are hazardous;
- they must never accumulate more than 2,200 lbs. of such wastes on any one site at any one time; and
- they must dispose of all such waste in a manner which is approved by the state. (Check this carefully, because different states have enacted different rules.)

More yet—Other terms of the act specifically state that a hazardous waste generating company must:

- obtain an EPA Identification Number;
- identify which hazardous waste it generates; and
- never accumulate such waste on

its site for more than 180 days (or 270 days if it must be transported more than 200 miles).

Wastes must be transported only by firms which have EPA Identification Numbers, comply with U.S. Department of

Transportation rules for shipping hazardous wastes and all rules relating to hazardous waste containers, labeling and safety.

Copies of all records must be retained for a minimum of three years.

The EPA also has the power—granted it through the Superfund law—to make waste generators pay part of the clean-up for environmental problems at hazardous waste disposal sites.

What to do—You can reduce risks and liabilities which can be incurred under RCRA and the Superfund law in five simple ways:

- 1) Estimate all job needs accurately so that you will not have chemical products left over after completing a specific assignment.
- 2) Never mix hazardous wastes, which can increase the total amount and make recycling difficult or impossible.
- 3) Recycle hazardous wastes whenever possible.
- 4) Document everything, and keep the records.
- 5) Watch that your disposal facility(ies) personnel follow all regulations.

—The author of this article, Bess Ritter May, is a freelance writer based in Philadelphia. She is a frequent contributor to LM.

More information

- Want more information concerning hazardous waste laws in the green industry?

Call the EPA for these free booklets: "Does Your Business Produce Hazardous Wastes?" and "Understanding the Small Quantity Generator Hazardous Waste Rules." You can also obtain a list of hazardous wastes through the EPA.

The EPA's phone number: (800) 424-9346.

—B.R.M.