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® Rain Bird is a registered trademark of Rain Bird Sprinkler Mfg. Corp., Glendora, California 91740.

Circle 134 on free information card

VEGETATION MANAGEMENT

By Roger Funk, Ph.D., Davey Horticultural Institute, Kent, Ohio

TREE

Q: *In planting trees in urban areas, what effect does soil incompatibility have on root development, overall vigor, and winter hardiness? The tree ball is one texture, soil backfill is another, and native soil is a third.*

A: Water and dissolved nutrients do not properly penetrate the interface developed between two distinctly different soil types. You did not mention the soil textures involved in your situation, but, in general, water penetration from a coarse soil to a fine-textured soil is so slow that if the layers are horizontally stratified, an artificial water table can develop above the fine-textured soil resulting in a water-logged condition.

Water penetration from a fine soil to a coarse soil is less restricted, but water will usually accumulate to nearly saturate the fine-textured soil before it moves across the interface.

The movement of water is necessary for the distribution of nutrients and for gaseous exchange, including the availability of oxygen for root respiration and the elimination of carbon dioxide. Any factor that affects the ratio of water and air in the soil and the availability and distribution of nutrients will have an influence on tree growth and vigor. And, of course, root development and tree vigor affects winter hardiness.

Q: *Numerous heavy snows this winter have taken their toll on trees and shrubs in my area. I am considering providing potential customers with some general repair information in my spring promotion. How would you summarize winter damage?*

A: Perhaps the single most destructive weather force on trees and shrubs is physical stress from glaze ice and heavy, wet snow.

Proper pruning, bolting, cabling and bracing are all important in preventing tree damage or repairing damage that has occurred. Multiple-stemmed evergreens such as boxwood, junipers and yews tend to spread apart and break under a heavy snow or ice load. Tying the branches together with a strong cord will help prevent or minimize structural damage.

Corrective pruning should begin when a tree is planted. Pruning not only improves appearance but also helps maintain a strong, sturdy tree. Proper pruning includes: the elimination of narrow, weak crotches and poorly located branches; the prevention of multiple leaders; the removal of



crossing and rubbing branches and the removal of dead and diseased branches.

Storm-damaged trees should be repaired as soon as possible after injury occurs. Remove broken and hanging branches that are a safety hazard and may cause additional damage to the tree. Prune ragged stubs and branch ends flush to a main branch, and "trace" any wounds in a vertical, elliptical form. Although the protective benefits of a wound dressing are controversial, they have been shown to reduce the spread of oak wilt, and, also, to aesthetically camouflage the pruning cuts.

Cabling and bracing are essential in the repair of storm-damaged trees. However, their greatest benefits are in prevention rather than correction of damage. Cabling and bracing are particularly applicable in the care of split crotches, V-shaped crotches, inherent weaknesses of species (i.e., maples, hackberry, Siberian elm), or extra heavy fruit and decay. Trees in close proximity to buildings should be given special attention. Inspect cables at least every three years and remove any slack. Also, repair or replace any rusty sections. In trees that have been previously damaged, remove excess suckers and modify the remaining ones so that they will eventually replace the damaged limbs.



BEAUTIFUL ALL OVER.

0217® brand Fylking Kentucky bluegrass is beautiful in every way; brilliant green in early spring, consistent green in summer heat and long-lasting green into autumn. It has improved resistance to many diseases, drought, heat, cold, smog and traffic. Low-growing, Fylking forms exceptionally thick-knit rhizomes and root system for a dense sod that helps resist weed invasion. Now you can have a home putting green

because fine-textured Fylking thrives on low-mowing (even as low as 1/2 inch).

This physically pure, genetically true seed contains no annual bluegrass (*Poa annua*), bentgrass, or short-awned foxtail.

Beautiful in price, too. Fylking Kentucky bluegrass seed costs less than most other elite bluegrasses. Ask for the Swedish beauty, 0217® brand Fylking Kentucky bluegrass seed when ordering at your local wholesale seed or sod distributor.



FYLKING KENTUCKY BLUEGRASS

U.S. Plant Patent 2887

Another fine, quality-controlled product of Jacklin Seed Company.



Let us prove to you that weed control with TRIMEC® costs less per acre

Test Trimec side-by-side with any other broadleaf herbicide for cost-per-acre, the true measure of economy.

In these inflationary times, discovering bargains is a way of life. Housewives stubbornly track down food and clothing specials. Purchasing agents pore over their price lists. And turf managers intensify their search for economy.

In each case, pitfalls abound. Because *unit price alone* can be misleading.

In herbicides, the gallon price is only one factor in value. Performance is equally important. Together, they can answer the three questions that really count:

1. *What is the smallest cost per acre for maintaining weed-free turf?*
2. *Will the smallest cost buy control that's ecologically sound and trouble-free?*
3. *Which herbicide best provides these ideals?*

Certainly you won't find the answers in a price list. You know that honest solutions depend on how much herbicide you use ... and what happens after you use it.

For several years, we've been saying that Trimec is the most effective, most economical, most troublefree broadleaf herbicide you can buy. But you should have more than our word. That's why we want you to test it.

Test it for power

Trimec has broad-spectrum capability. Normally, one light application

controls almost all weeds, even hard-to-kill species. In fact, we're surprised when we find a broadleaf weed that's Trimec-resistant. Why? Because Trimec's patented formulation of 2,4-D, MCPP and Dicamba is curiously, synergistically powerful. *The interaction of the three components produces strength much greater than the sum of the separate components.* This synergistic gain multiplies the efficiency, and does it with a small chemical dosage. This synergism also increases Trimec's cool-weather efficiency; it continues to work in late fall, at 50° or cooler.

Test Trimec efficiency

Comparisons have shown that Trimec costs less per acre for weed-free turf than any other herbicide. You use fewer gallons, you seldom need retreatment ... *your total cost is lower.* Such efficiency alone is reason enough to justify a Trimec test. Yet, other benefits are just as persuasive:

Test Trimec gentleness

This herbicide is ecologically sound, and troublefree. Although it's strong enough to destroy almost all weeds, it poses little threat to trees, flowers and ornamentals because there is little root absorption from the light chemical dosage. Tender grasses are protected, too. And the danger of "drift" is reduced. Biodegradable, precisely factory-formulated, Trimec also eliminates "field chemistry" and the chance of costly mixing errors.

Trimec benefits summarized

- Controls the widest range of broadleaf weeds
- Gets hard-to-kill species with one treatment
- Wide safety margin for lawn grasses, ornamentals
- Minimum hazard from root absorption
- No vapor action after application
- Effective weed control in wide temperature range
- Unique formula overcomes water hardness problems
- Treated areas may be seeded within two weeks
- Non-flammable and non-corrosive in use
- Product stable several years above 32° F.
- Biodegradable; friendly to the environment
- Bentgrass formula also available

Will you field test it?

We ask you to put Trimec to the test, with these suggestions: Search out the worst weed patch in your turf. *On one half*, apply your customary herbicide. *On the other half*, spray Trimec at the label recommendation. Then, watch the effects. Add up labor and material costs. Evaluate the results for each test plot. Whatever your conclusion, we'd like to know. For such information is valuable to our future progress.

Finally, consult your Trimec dealer for prices, technical information and other help. He's listed on the next page and would like to share in your experiment.

Trimec® is a registered trademark of PBI/GORDON Corporation, U.S. patent No. 3,284,186

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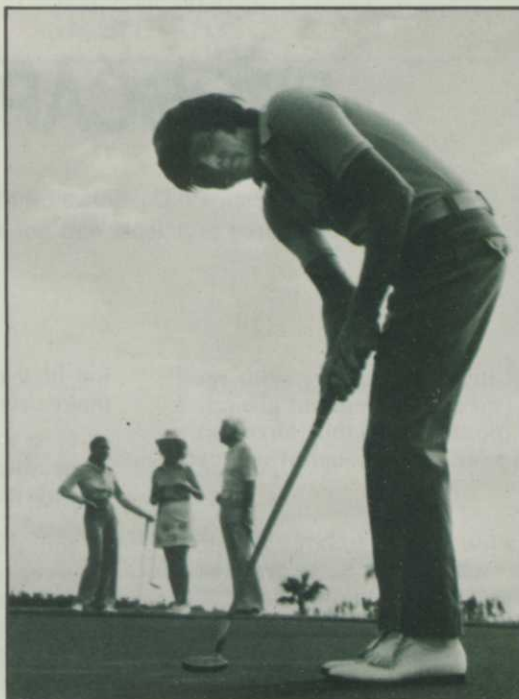
Take your turf problems to the old pro

Your Gordon distributor stocks Trimec and a complete family of other Gordon professional turf products. Like Trimec, their superiority is tested and proved.

Of course, your Gordon distributor is there to help you... like a silent partner in your business. He is trained to provide technical assistance when you need it.

Should you have an especially tough problem beyond the expertise of your authorized Gordon distributor, he will call promptly for back-up assistance via his direct line to our Technical Service department. Between us, we'll find a solution.

Meanwhile, call the Old Pro for any information you need, or for a review of your turf program. He'll be glad to help.



Authorized Distributors Gordon Professional Turf Products

ALASKA

Palmer
• Alamasu, Inc.

ALABAMA

Birmingham
• Norala Company, Inc. • Tieceo, Inc.
Montgomery • Tieceo, Inc.

ARIZONA

Phoenix
• Capitol Nursery Supply
• Target Chemical Company
• Tucson • Copper State Chemical Co.

ARKANSAS

Alexander • Capital Equipment Co.

CALIFORNIA

Anaheim
• Eagle Chemical Co.
• Foster-Gardner, Inc.
Bakersfield • Abate-A-Weed Co.
Cathedral City • Butlers Mill, Inc.
Cerritos • Target Chemical Co.
Chula Vista • Wilbur-Ellis Company
Coachella • Foster-Gardner, Inc.
Newark
• I. & V Farm Sales, Inc.
Orange
• Robinson Fertilizer Co.
Oxnard • Coastal Ag. Chem.
Sacramento
• Orchard Supply Company
San Diego
• Butlers Mill, Inc.
• San Diego Chemical Co.
San Gabriel
• J. Harold Mitchell Co.
San Jose
• Eagle Chemical Co. • Moyer Chemical Co.
• Northern California Fertilizer Co.
• Target Chemical Co.
San Leandro • Custom Chemilene
Santa Ana
• Van Waters & Rogers
Santa Barbara
• Moyer Chemical Company
Santa Barbara
• Agri Turf Supplies, Inc.
Santa Rosa
• Purity Chemical Products Co.
South Gate City
• Los Angeles Chemical Co.

COLORADO

Arvada • S.A.J. Turf Products
Colorado Springs • Gorbey, Inc.
Denver
• Van Waters & Rogers
• Western Gard'n-Wise
Pueblo • Pueblo Chemical & Supply

CONNECTICUT

Devon • Somers Turf Supplies
Greenwich
• Emanuel Shemin Greenhouses & Nurs.
Hazardville
• Old Fox Chemical, Inc.
So. Windsor
• Turf Products Corporation

DELAWARE

Wilmington • Turf Enterprises

FLORIDA

Homestead
• Atlantic Fertilizer & Chemical
Jacksonville • Bingham Seed Co.
Pompano Beach
• Swift Agricultural Chemical Corp.
Pensacola
• Gulf Shore Turf Supply, Inc.
• Tieceo Gulf Coast
Sanford • Chase & Company
Winterhaven
• Swift Agricultural Chemical Corp.
Georgia
Atlanta • Regal Chemical Co.
College Park • Stephenson Chemical Co.
Conyers • Lawn & Turf, Inc.
Doraville • Georgia Golf & Garden
Ft. Valley
• Woolfolk Chemical Works, Inc.

HAWAII

Hilo • Occidental Chemical Co.
Honolulu • Occidental Chemical Co.
Kahului • Occidental Chemical Co.
Lihue • Occidental Chemical Co.

IDAHO

Boise • Steve Regan Co.
Caldwell • Wasatch Chemical Co.
Idaho Falls
• Wasatch Chemical Co.
Rupert
• Wasatch Chemical Co.

ILLINOIS

Barrington
• Olsen Distributing Co.
Bloomington
• Professional Turf Specialty
Chicago • George A. Davis, Inc.
W. Chicago • Turf Products, Ltd.
Decatur
• Scruggs-Drake Equipment, Inc.
E. Peoria
• Leon Short & Sons, Inc.
Peoria • Behm & Hageman, Inc.
Geneseo • C. D. Ford & Sons
Morton Grove
• V-G Supply Company
Rockton
• Turf Management Supply
Springfield
• Drake-Scruggs Equipment, Inc.
Wheeling
• Arthur Clesen, Inc.

INDIANA

Indianapolis
• Desco Chemical, Inc.
• Cory Orchard Supply Co.
Nappanee • Desco Chemical, Inc.

IOWA

Cedar Rapids
• Hawkeye Seed Co. Inc.
Council Bluffs • Leisure-Aid
Davenport • Tri-State Toro Co.
Des Moines
• Toro Service Center
W. Des Moines
• Big Bear Turf

• Resthaven Turf Service
Elkader • Meyer Equipment Co.
Iowa City • Little Wheels, Ltd.
Sioux City
• W. R. Anderson Dist. Co.
Waterloo • Foster's, Inc.
Waukeo • Baer Ag Supply
West Burlington
• Brayton Chemical, Inc.

KANSAS

Kansas City
• Pest Control Supplies
• Rhodes Chemical Co.
Salina • The Landscap Corporation
Wichita
• Bartels & Shore Chemical Co.
• Ci-ampion Turf Equipment, Inc.
• Robert S. Wise Company

KENTUCKY

Florence
• George W. Hill & Co., Inc.
Louisville
• Buntun Seed Co., Inc.
• Ky-Inna Turf Supply Co., Inc.

LOUISIANA

Baton Rouge
• Wyche's Golf Course Specialties, Inc.
New Orleans
• Southern Specialty Sales Co., Inc.
Plain Dealing
• Wyche Golf Course Specialties, Inc.

MARYLAND

Baltimore
• Cornell Chemical & Equip. Co., Inc.
• Miller Chemical & Fertilizer
Landover • Vaughan Seed Company

MASSACHUSETTS

Newton Center
• Grounds Equipment Co., Inc.
Waltham
• Farm Bureau Coop Assn., Inc.
West Newton • The Clapper Company

MICHIGAN

Birmingham
• W. F. Miller Company
Detroit
• Terminal Sales Corporation
Grand Rapids
• Mollena & Son, Inc.
• Parmender & Andre
Hartford • Desco Chemical, Inc.
Kalamazoo • J. J. Dill Company
Royal Oak • Lawn Equipment
Saginaw • Burdick Seed Company
Taylor • Turf Supplies, Inc.
Traverse City • Fergusons Company

MINNESOTA

Minneapolis • Minnesota Toro, Inc.
St. Paul
• R. L. Gould & Company
• Turf Supply Company
Savage
• The Castle Chemical Co., Inc.

MISSOURI

Chesterfield
• Beckman Turf & Irrigation

Grandview

• The Landscap Corp.
• Robison's Lawn & Golf Supply

Kansas City

• Bartels & Shore Chemical Co.
• Champion Turf Equip., Inc.
• Standard Seed Company
Maryland Heights
• Outdoor Equipment Co.

St. Louis

• Crown Chemicals • Kitten & Bear
Springfield
• Champion Turf Equip., Inc.

MONTANA

Billings • Turf Aid Dist. Company
Helena • Mr. Turf

NEBRASKA

McCook • Cornbelt Chemical
Morrill
• Jirdon Agri Chemicals, Inc.
Omaha
• Big Bear Equip., Inc.
• Midwest Toro • The Yard Company
• Leisure-Aid
• Tri-Valley Corporation

NEVADA

Las Vegas
• Clark County Whol. Merc. Co.
North Las Vegas
• Las Vegas Fertilizer Co., Inc.

NEW HAMPSHIRE

Greenland • Turf Specialty, Inc.

NEW JERSEY

Boundbrook
• Loft Seed Company
• Vaughan-Jacklin Corporation
Freehold • Green Hills Turf Supply
Maplewood • Pierson's Mill Company
Mountainside • Andrew Wilson, Inc.
Rahway • Ferti-Soil Company
Saddle Brook • The Terre Company
West Caldwell
• Rockland Chemical Co.
Yardville • Jep Sales, Inc.

NEW MEXICO

Albuquerque
• Albuquerque Chemical Co., Inc.
Roswell
• Roswell Seed Company, Inc.

NEW YORK

Farmingdale • Wagner Seed Company
Hamburg • Eaton Equipment Company
Hawthorne • Metro Milorganite
Hauppauge • Maxwell Turf, Inc.
Jamaica • J & L Adikes, Inc.
Bergen • Lawn Medic
Rexford • S. V. Moffett, Inc.
South Hampton
• James H. Lynch, Inc.
Lincolndale
• Westchester Turf Supply Co.
Syracuse • Agway, Inc.
W. Henrietta • S. V. Moffett, Inc.

NORTH CAROLINA

Charlotte • Seedmen, Inc.

Shelby • Porter Brothers, Inc.
Winston Salem • Goltra, Inc.

OHIO

Canton • Letherman Seed Company
Cincinnati
• Century Toro Dist. Inc.
• Thorton Wilson

Cleveland

• Sidney L. Dryfoos Co.
• U.S. Garden Sales, Inc.

Columbus

• Century Toro Dist. Inc.
• W. R. Grace & Company

Dayton

• Century Toro Dist. Inc.

Elyria

• Lakeshore Equipment & Supply Co.
Findlay • Desco Chemical, Inc.

Mantua

• John R. Skinner Co.

Toledo

• Century Toro Dist. Inc.

OKLAHOMA

Oklahoma City
• Estes Chemicals, Inc.

Tulsa

• All Best, Inc.
• Thompson-Hayward Chemical Co.
• Wait Mfg. & Sales Co.

OREGON

Portland
• The Charles H. Lilly Co.
• Van Waters & Rogers
• Wilbur-Ellis Company

PENNSYLVANIA

Doylestown • Philadelphia Toro
Hanover
• Miller Chemical & Fert. Corp.
Harleysville • Geiger Corporation
Horsham • Pocono Supply Company
Lebanon • Lebanon Chemical Corp.
Malvern • Fisher & Son Co., Inc.
Philadelphia
• Farm & Golf Course Supply Co., Inc.
Phoenixville
• Lawn & Golf Supply

Pittsburgh

• E. H. Griffith, Inc.
• Krigger & Company
Reading • Reading Bone Fertilizer
Wycombe • Histanud Supply

RHODE ISLAND

East Providence
• Old Fox Chemical, Inc.

SOUTH DAKOTA

Sioux Falls • C & R Supply Company

TENNESSEE

Knoxville • Regal Chemical Co.
Memphis
• Axon Corporation • Bob Ladd, Inc.
• Oldham Chemical Co., Inc.
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• Central South Turf Dist.
• Tieceo, Inc.

TEXAS

Amarillo • Amarillo Seed House
Dallas
• Chemical & Turf Specialty Co.
• Van Waters & Rogers
El Paso • El Paso Turf Supply
Lubbock
• Williamson Seed Company, Inc.
Paris • Estes Chemical, Inc.
Waco • Estes Chemical, Inc.
Wichita Falls • Estes Chemical, Inc.

UTAH

Orem • Wasatch Chemical Div.
Salt Lake City
• Steve Regan Company
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VIRGINIA

Chesapeake • Turf & Garden Div.
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Richmond
• Richmond Power Equip. Co., Inc.
Roanoke
• Agri-Turf Products Co., Inc.
• Miller Chemical & Fertilizer

WASHINGTON

Kent • Van Waters & Rogers
Renton • Pacific Agro Company
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Tacoma • NuLife Fertilizers

WASHINGTON, D.C.

• Lea's Green Meadows, Inc.

WEST VIRGINIA

Charleston • Youngs, Inc.

WISCONSIN

Chilton • Horst Distributing Co.
Elm Grove
• Reinder Bros. Turf Equipment
Milwaukee
• Loft-Kellogg Seed, Inc.
Sun Prairie
• Turf Management Supply

PROSCAPE

By Michael Hurdzan, Ph.D., Kidwell and Hurdzan, Inc.,
golf course architects and consultants.

Q: Recently I seeded my bent nursery with seed that was certified as *Poa annua* free, but already I see annual bluegrass plants. Could they have come in with the bentgrass seed even though it was certified as *Poa* free?

A: Yes. Seed certification is done to large volumes of seeds called "Lots" which may be as large as a box car load. This means that some unscrupulous seed dealers buy large volumes of seed and may make 150 tests (one gram sample size) on the lot, but need only submit one result for tagging purposes. Thus 149 of the 150 samples could be contaminated and only one test not show impurities; and it is this test result that is attached to the "Lot." Everything is legal and you have no recourse although your seed may have had as much as 80-100 *Poa annua* seeds per pound. The best insurance against such mistakes is to buy only from reputable seed dealers and send a 25 gram sample, not a one gram sample, to a seed test lab after the seed is delivered to your storage area to insure you have the specified quality. The old adage is "as you sow, so shall you mow."

Q: Our sand traps keep washing out from every rain or even after a heavy irrigation. What can we do to keep the sand in place?

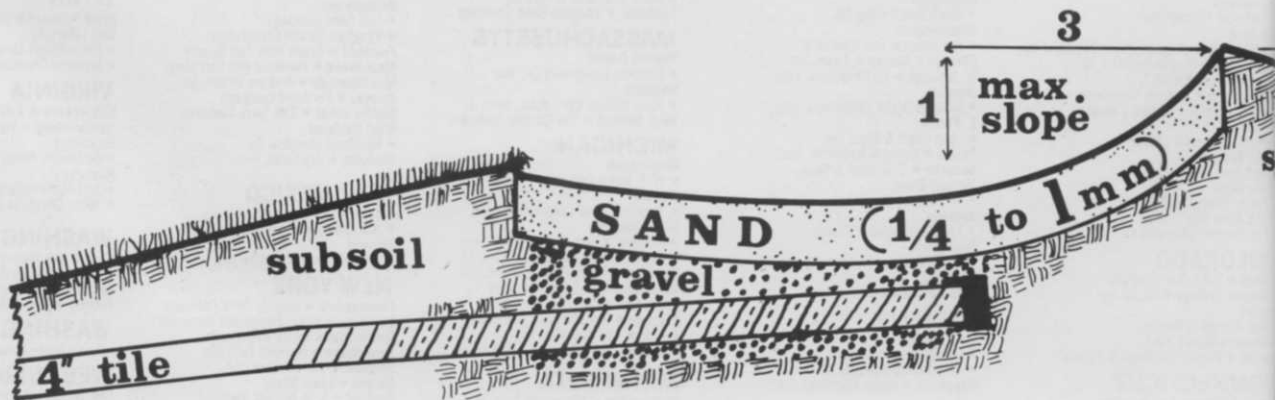
A: This is a difficult problem unless the sand trap is properly built to begin with. Perhaps by describ-

ing how a trap should be built will allow you to make corrections:

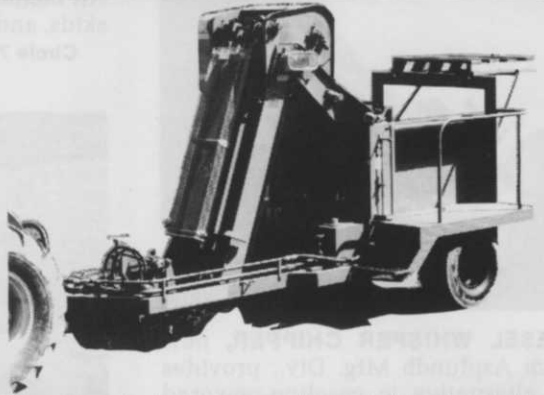
- 1) First the trap edges should be elevated to drain as much water away from the trap as possible. This means the sand trap edge nearest the green might be 6" higher than the green or surrounding land so that water drains toward the green or a drainage swale.
- 2) The slope of the trap should be not more than 3:1 to reduce washing of sand off the faces.
- 3) The depth of sand should be a minimum of 6" to allow percolation and subsurface movement of water.
- 4) The sand trap bottoms should be concave and smooth with a stable clay or hard base to facilitate this subsurface water movement.
- 5) The sand size should be between 1/4 to 1 mm. in size to provide a firm but well drained texture.
- 6) Traps should be tile drained and gravel back-filled to the trap subgrade to remove water that enters the trap.
- 7) If your membership permits, allow the grass on trap edges to grow a little longer to reduce velocity of water entering the trap.

These suggestions may not result in most artistic traps but they will require less maintenance.

Q: We plan to do some tile drainage using perforated, flexible, plastic tile and are considering using 2" tile. Others tell us that we should use nothing smaller than 4". Which is best?



In 2 Minutes... You're Hooked with a "Tow-Boy" Sod Harvester



Operating behind any adequately sized, low speed tractor, the Princeton "Tow-Boy" allows complete flexibility in the use of your power supply...because of its exclusive "2 minute hook-up" capability. Harvest in the morning, mow, seed, and spray in the afternoon.

Save time, money and man hours. Increase production! No large field crew needed. Harvest over 2,000 sq. yds. of sod per hour with three-man crew. All sod is cut, palletized and ready to ship.

Perfect for smaller volume sod producer. Now, **you** can enjoy the high production and labor saving features of the larger Princeton harvesters...at one-third the cost. Ask for the "Tow-Boy" by Princeton.

There's a Princeton for Everyone.

AUTOMATIC

The only sod harvester that does it all...with just one man! Cuts, aerates, crosstie stacks, and palletizes 9,000 sq. yds. of sod per hour with a crew of one. Save time, money, and man hours. For the large volume sod producers who want to increase production and profit—the Princeton "Automatic" Sod Harvester.

SELF-PROPELLED

Increase your profits...by reducing costs and increasing production. Three man crew can harvest 7,500 sq. yds. of sod per hour. For the medium to large volume sod producer who wants quality, high production and low maintenance at a moderate price. The Princeton "Self Propelled" Sod Harvester.



For additional information, write or call collect:

Chuck Braun
Sales Manager
955 W. Walnut Street
Canal Winchester, Ohio 43110
614/837-9096

PRINCETON

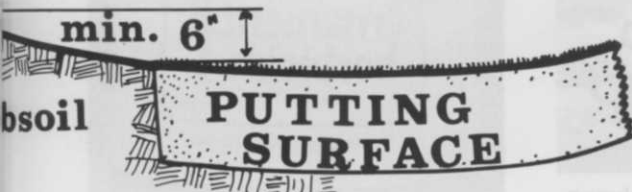
MANUFACTURING COMPANY
Dealer/Distributor inquiries invited

A: I don't believe it is a question of which is best, for most products meet or exceed the A.S.T.M. D 1248 specifications. Rather it is a matter of for what purpose you are using the tile. For PURR-Wick construction I believe Dr. Daniel's design concept is based on 2" tile. For all other drainage consider the following:

1. The cost of material for 4" tile is about 1/3 higher than for 2" tile.
2. However a 4" tile carries four times the water of a 2" —
Area of circle = πr^2 where r = radius
Area of 2" tile = $3.14 \times 1^2 = 3.14$ inches²
Area of 4" tile = $3.14 \times 2^2 = 12.56$ inches²
3. The cost of trenching and laying is only slightly higher for 4" over 2".
4. However you have a larger margin of installation error with 4" tile. A 2" undulation with 2" tile may result in a silt trap while it would take a 4" error before you got a similar result using larger tile. This is most important if the trench bottom is uneven as in rock, or unstable as in mud.

In summary, if the money is available to do the job, the 4" tile would be the better choice.

PROSCAPE is a free problem solving service for any residential, industrial, and golf course landscaping topic. Write your questions for PROSCAPE on the postpaid reader question card in this issue.

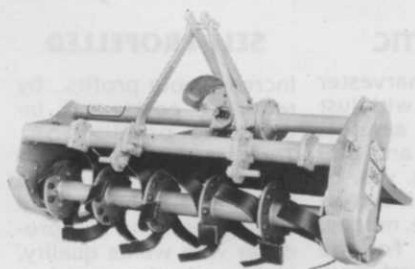


PRODUCTS



DIESEL WHISPER CHIPPER, new from Asplundh Mfg. Div., provides an alternative to gasoline-powered chippers. The model JEY has a 236 cu. in., four-stroke, in-line four-cylinder Perkins diesel engine. The engine is designed for heavy industrial usage and features replaceable cylinder sleeves and pistons. Diesel engines offer fuel savings compared to gasoline units. A noise limiting muffler keeps noise down for work in residential and metropolitan areas. Regular Asplundh features include heavy-duty clutch, tachometer/hour meter, cold start system, dry air cleaner, and a group 4 battery.

Circle 701 on free information card



ROTARY TILLER for small tractors is available from the Maschio Div. of Ferrari International, Inc. Designed for use on tractors ranging from 16 to 50 h.p., the tiller has a four-speed gearbox with easily changeable heavy-duty gears. All rotary shafts are hydrostatically balanced, and all units have over-sized bearings, gears, and shafts. Power is transmitted by an extra large chain. Main shaft bearings are protected from grass, wire, etc., by a patented seal. Maschio engineering gives a low profile and unified double bar construction provides strength and rigidity. The new Model "Super L" is

available in 31", 41", 51", 61" widths. All models feature adjustable depth skids, and contain 6 tines per flange.

Circle 702 on free information card



TRACTOR-DRIVEN TRENCHER designed for simplicity and low maintenance is available from Kraft Inc. The Norway-built Radahl trencher has a unique digging wheel which has 10 easily replaceable teeth. The trencher can dig a ten-in. trench and install clay or concrete pipe or plastic tubing simultaneously. The manufacturer says an 80 h.p., two-wheel tractor can operate the trencher adequately. The rate of installation for pipe is 20 ft./min. and 40 ft./min. for tubing. A slip clutch is incorporated in the trencher to prevent overload. Maximum trench depth is five-ft.

Circle 703 on free information card



UTILITY VEHICLE from Cushman-Ryan features radial frame construction. The one-piece welded frame, skid bars and steel bumper guards are designed to protect the vehicle. Standard features on both the 12- and 18-h.p. models include padded seating, manual three-speed transmission with synchromesh in second and high gear, rear brakes and sealed beam headlight. Options include vented cab with lockable steel doors and an exhaust spark

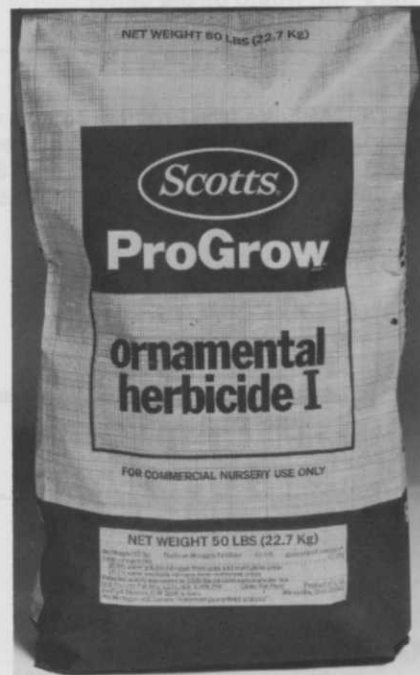
arrestor. Both models have pickup boxes and can carry 1,000 lbs. of payload plus the driver.

Circle 704 on free information card



PORTABLE WHOLE-TREE CHIPPER has been introduced by Strong Mfg. Co. for the municipal, landclearing, and tree service industries. The Trelan C-14 features a 14-in. capacity, a ground-operated knuckle boom loader, and a 100 h.p. six-cylinder, Ford gasoline engine. The new model weighs 10,000 lbs. and measures 13 ft. long, 8 ft. wide, and 9 ft. high.

Circle 705 on free information card



PREEMERGENT ORNAMENTAL HERBICIDE from Scotts is a granular herbicide for preemergence control of grassy and broadleaf weeds around ornamentals. Progrow Ornamental Herbicide I is registered for

the control of annual bluegrass, barnyardgrass, crabgrass, goosegrass, bittercress, common groundsel, dandelion, lambsquarters, oxalis, smartweed, pigweed, purslane, scarlet pimpernel, sheperdspurse, sow thistle and spotted spurge. It may be used on 53 container and field grown ornamentals. The herbicide does not eliminate established weeds and should be applied prior to weed seed germination or after existing weeds have been removed.

Circle 706 on free information card



KENTUCKY 31 FESCUE is now available in newly designed bags from the Midwestern States Fescue Association. The bag has an eye-catching red and green design, lists consumer benefits, and gives detailed planting instructions for both lawn and field use. The tall fescue will be bagged in a variety of sizes.

Circle 707 on free information card



COMPACT CHAIN SAW for tree trimming is available from Husquarna. The Model 38VR has a 2.3 cu. in., 9500 rpm engine and weighs 11 lbs. It features Husquarna's anti-vibration system. Chain brake is optional.

Circle 708 on free information card



POWERAKE by F.D. Kees offers new features to save time and energy. The Model 100528 boasts a centrifugal clutch for easier starting and operator safety, a single-action height adjustment, dual filter air cleaner, and an improved heavy-duty wheel with grease fittings. The Powerake utilizes a 5 h.p. Briggs & Stratton engine, and 28 hardened-steel, self-cleaning fingers to clean a 20-in. swath. The raking assembly is interchangeable with the aerator assembly of the Kees Powerslice.

Circle 709 on free information card



IMPROVED MOWERS by Excel Industries, Inc. feature improved drive train and steering linkage. The Hustler mowers have Kohler engines, heavy-duty air cleaners, adjustable suspension seats, hour meters, engine heat warning lights, seat-actuated engine kill switches, dual hydrostatic drives, and drum park brakes. Four rotary and flail mowing decks are available from 54 to 72 in. wide. A number of attachments are available to increase the mower's usefulness, including a catcher, edger, cultivator, mulcher, dozer blade, snowthrower, broom, cab and trailer.

Circle 710 on free information card

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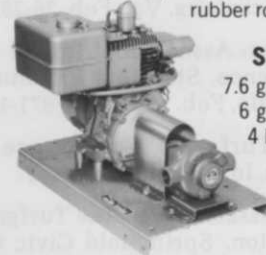
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WT&T EVENTS

National Arborist Association Annual Meeting, Sarasota Hyatt House, Sarasota, Fla., Feb. 19-23, 516/221-3082.

Capital Area Turf School, Hershey Motor Lodge, Hershey, Penn., Feb. 21-22.

Western Pennsylvania Turf School/Trade Show, Howard Johnson Motor Lodge, Monroeville, Penn., Feb. 21-23.

Pest Management Seminar, Target Chemical Co., Anaheim Convention Center, Anaheim, Ca., Feb. 22, 213/921-7707.

Landscape Design Short Course III For Residential Properties, Ohio Agricultural Research and Development Center, Wooster, Ohio, Feb. 23-25, Fred K. Buscher, Area Extension Center, OARDC, Wooster, Ohio 44691.

21st Annual Shade Tree Short Course, Scheman Auditorium, Iowa State University, Ames, Iowa, Feb. 22-23, 515/294-1168.

National Recreation and Parks Association Pacific SW Regional Conference, Fresno, Ca., Feb. 25-28, 414/733-2301.

American Society of Golf Course Architects Annual Meeting, Carefree Inn, Phoenix, Ariz., Feb. 26-Mar. 3, 312/372-7090.

International Society of Arboriculture, Southern Chapter Annual Meeting, Sheraton Motor Inn, Fredericksburg, Va., Feb. 26-28.

Irrigation Association Annual Irrigation Technical Conference, Stouffers Cincinnati Towers, Cincinnati, Ohio, Feb. 26-28, 301/871-1200.

Iowa Turfgrass Conference, Hilton Inn, Des Moines, Iowa, Feb. 27-Mar. 1.

47th Massachusetts Fine Turfgrass Conference and Exhibition, Springfield Civic Center, Springfield, Mass., Feb. 28-Mar. 2, Mass. Turf and Lawn Grass Council, P. R. Scagnetti, The Clapper Co., 1121 Washington St., W. Newton Mass. 02165.

Northeastern Pennsylvania Turf School, Master Host Inn, Wilkes-Barre, Penn., Feb. 28.

"Tree Stresses" Short Course, University of Missouri-Columbia, Feb. 28-Mar. 1, John P. Slusher, 314/882-4444.

29th Annual Canadian Turfgrass Show, Canadian Golf Superintendents Association, Hotel Toronto, Toronto, Ontario, Canada, Mar. 5-8, 416/767-2550.

Wisconsin Landscape Federation 1978 Conference, Concourse Hotel, Madison, Wis., Mar. 5-6.

Eighth Vertebrate Pest Conference, Red Lion

Motor Inn, Sacramento, Ca., Mar. 7-9, Dr. Dale A. Wade, Program Chairman, 554 Hutchison Hall, University of California, Davis, Ca. 95616.

Nassau-Suffolk Landscape Gardeners Association 10th Annual Turf Conference, Salisbury Park, East Meadow, Long Island, N.Y., Mar. 7.

National Recreation and Parks Association Southwest Regional Conference, Albuquerque, N.M., Mar. 12-14, 202/525-0606.

Midwest Regional Turf Conference, Midwest Regional Turf Foundation, Stewart Center, Purdue University, W. Lafayette, Ind., Mar. 13-15, 317/749-2891.

Western Society of Weed Science Annual Meeting, Nugget Motel and Convention Center, Reno, Nev., Mar. 14-16.

Northcentral Pennsylvania Turf School, Holiday Inn, Bradford, Penn., Mar. 21.

West Virginia Weed Control Association Annual Meeting, Holiday Inn No. 2, Charleston, W. Va., Mar. 28-29, W. Va. Weed Control Assoc., P.O. Box 1986, Charleston, W. Va., 25327

National Recreation and Parks Association Southern Regional Conference, Biloxi, Miss., Apr. 2-4, 202/525-0606.

Williamsburg Garden Symposium, Williamsburg, Va., Apr. 2-5, 804/229-1000 Ext. 2365.

National Recreation and Parks Association Pacific NW Regional Conference, Yakima, Wash., Apr. 8-12, 202/525-0606.

American Horticultural Society Spring Symposium, Mills Hyatt House, Charleston, S.C., Apr. 9-12, 703/768-5700.

Pennsylvania Recreation and Park Society 31st Annual Conference, Downingtown Inn, Downingtown, Penn., Apr. 9-12, Robert Griffith, 814/865-1851.

ALCA Interiorscape Symposium, Hyatt Regency O'Hare, Chicago, Ill., Apr. 20-21, 703/893-5440.

Canadian Land Reclamation Association Third Annual General Meeting, Sudbury, Ontario, Canada, May-29-June 1, Canadian Land Reclamation Association, Box 682, Guelph, Ontario, Canada N1H 6L3.

American Sod Producers Association Summer Convention & Field Days, Sheraton-Spokane, Spokane, Wash., July 19-21, 402/463-5691.

ALCA Reclamation/Erosion Control Symposium, Marriott Hotel, Denver, Colo., Aug. 3-4, 703/893-5400.