Seattle chapter of the American Institute of Industrial Engineers.

Rod and his wife live in Woodinville, Washington, with their three children.

There are few industries today with the breadth and depth of exciting challenges which exist in landscape contracting. The scope of this industry has expanded greatly in recent years to include many specialty firms in maintenance, design/build, erosion control, irrigation, lawn care, spray application, tree care and others. The environmental "boom" of the '70's is consolidating into much more than simply an influx of new companies. There is an emerging industry with the capability of coordinating action and focusing on itself in understandable terms.

The history, status today, and challenge for the future are nowhere better stated than in ALCA's Crystal Ball Committee report, *Landscape Contracting Today and Tomorrow*. I urge everyone involved in the Green Industry to obtain a copy and read it.

Between 80 and 90 percent of the companies actively engaged in one phase or another of landscape contracting classify as small businesses. They have the common challenges of all small businesses today in America including development of professionalism in all phases of management, coordination of support for legislative representation, a growing need for people development and training and a need to keep up with increasingly rapid technical changes and advancements. Sharpening management and financial skills and obtaining capital for the growth needs of the next few years are particular areas of need throughout our industry.

With a growing multiplicity of trade associations and groups representing various phases of our industry, it is necessary to find the means for improved coordination and communication between them.

The state of landscape contracting ten years from now will depend entirely on how well these challenges are met.

William A. Meyer, Ph.D.

Bill Meyer is research director of Turf-Seed, Inc., and president of Pure-Seed Testing, Inc., both in Hubbard, Oregon. He was previously research director for Warren's Turf Nursery in Palos Park, Illinois.

Bill received his Ph.D. in plant pathology from the University of Illinois in 1972. He has worked in landscaping and as an assistant superintendent for two country clubs. His research interests are breeding and selection work on turf-type perennial ryegrasses, Kentucky bluegrasses, and fescues to improve disease resistance, turf performance, and seed yields. He is a member of the American Society of Agronomy, the Midwest Golf Course Superintendents Association, the American Phytopathological Society, and Alpha Zeta Honorary Fraternity.

Meyer lives in Silverton, Oregon, is married, and has three children.

The winter of 1977-78 in the Willamette Valley of Oregon has been good for the growth and development of seed production fields. Rainfall has been abundant which is normal for this area. The rainfall along with moderate temperatures and few frosts have promoted good growth of new seedings and old stands. One negative effect of the moderate temperatures could be the overwintering of rust fungi in old leaf tissues which will result in abundant inoculum in the spring.

State and Federal restrictions on the acres of grass seed fields to be open-burned will also result in increased quantities of rust inoculum in unburnt fields. In the 1978 production season, state regulations at the present will allow 180,000 acres to be burned which will leave at least 60,000 unburned acres. The lack of burning will result in greater disease pressures, insect problems, weed control challenges and reduced seed yields.

The popularity of the new turf-type perennial ryegrasses throughout the world has resulted in increased acreage of these varieties in the Willametter Valley in recent years. These varieties have been well accepted in bluegrass blends in the northern US and have performed very well for overseeding dormant bermudagrass greens in the southern US.

There has been an increase in the amount of variety development work being conducted by private companies in the Willamette Valley. Varieties of perennial ryegrass, Kentucky bluegrass and fine and tall fescues are being sought that have improved turf performance along with better seed producing abilities.

Stem rust in perennial ryegrass fields has been getting more severe in the last few years. Field burning restrictions are probably making this problem more severe. Plant breeders, such as myself, are striving to develop stem rust resistant varieties of perennial ryegrass in order to reduce production costs. This could be accomplished by eliminating the fungicide applications that are now required.

The seed producing abilities of all of the presently grown turfgrass species need to be improved to enable the grass seed farmers to meet the challenges of greatly increased production costs. This can and will be done through breeding programs which select attractive varieties that also combine the genetic ability of efficient seed production. Varieties are being sought which produce abundant seed heads with a high precentage of productive flowers.

Much cooperation is needed between the turf specialists throughout the world and the plant

Continues on page 74

Can Exhalt®800 cut your fungicide cost in half?

Many turfmen say yes. Our lab tests confirm it. Don't you at least owe it to yourself to spend three minutes reading the story?

For years, fungus disease control has been a source of trouble, frustration and expense. The problem is not the fungicide itself, but the application: how to keep it in place despite torrential rains and irrigation. The problem is wash-off.

That's why the development of Exhalt800 is a milestone of progress in the turf world. Here's the story:

Unlike many sticker-extenders that give little help, Exhalt800 encapsulates every fungicide particle with an armor of protection . . . a sticky, flexible "fabric" that clings to turf and foliage, essentially on contact. Yet it flexes and "breathes" to allow normal plant growth.

Because Exhalt800 keeps much of the fungicide in place, even in extreme weather, it can double or triple the control period. Even if it rains an hour after application, you'll still have effective control (see test chart), with less wash-off and less build-up of residue in soil.

Using Exhalt800, you may save 50% or more because you will need fewer sprays, you will use less fungicide with each, and reduce labor costs proportionately. Meanwhile, you can be confident the disease won't flare out of control. The evidence is clear.

In university field tests using leading fungicides, Exhalt800 added to spray tank at minimum-label recommendations gave control equal to higher recommendations without Exhalt800. With higher Exhalt800 dosages, you can double or triple the control period. Results can vary with the kind of fungicide used.

Exhalt800 costs little because it goes far (mix one pint with each 100 gallons in spray tank). Won't damage turf, trees and ornamentals when used as directed. Easy to use: add to spray tank and agitate. Easy clean-up: rinse equipment with water. If frozen in storage, Exhalt800 won't separate; may be thawed and used.

Too good to be true? The question doesn't surprise us. Compared with its competition, Exhalt800 *is* hard to believe. To know the truth, you should test it. On a golf green. A fairway. On any fungus-infested lawn or foliage.

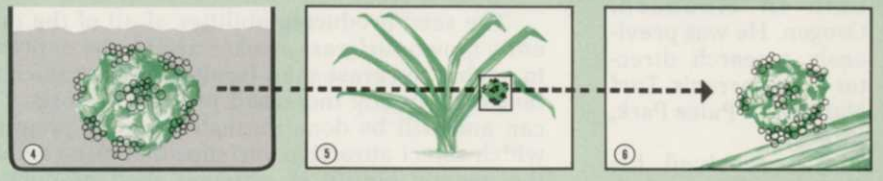
As an efficient manager, can you ignore the overwhelming evidence? See your Gordon distributor for information, prices and technical assistance.

A closer look at Exhalt®800 — the reason it works

1) Microscopic particles of fungicide are suspended in water in spray tank.

2) One minute fungicide particle, greatly magnified. Countless millions of such particles in water become the spray solution.

3) Exhalt800 liquid enters spray tank. Hydrophobic (repelled by water), it breaks into a myriad of tiny droplets and attaches to fungicide.



4) Tiny Exhalt800 droplets form a porous, flexible "fabric" that encapsulates each fungicide particle (enlarged to show detail).

5) Turf, when sprayed, becomes coated with millions of fungicide particles, each particle encapsulated within the porous "fabric" of Exhalt800 droplets.

6) Encapsulated fungicide particles on blade of grass (magnified portion). The Exhalt "fabric" around each particle is porous and flexible; it lets plant "breathe", flex and grow, releases fungicide slowly.

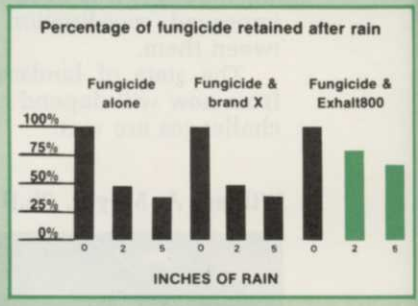


Chart shows how Exhalt800 resisted wash-off in a laboratory test. Spray coatings were applied to glass panels and dried 10 minutes at approximately 70° F. Retention after erosion by rain was measured by solvent stripping the panels and determining the residual fungicide by quantitative ultraviolet spectroscopy.

GORDON'S

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Exhalt®800 is one of many superior turf products at your Gordon distributor

Exhalt800 typifies the superiority of the family of Gordon professional turf products, including TRIMEC® Broadleaf Herbicide. Their efficiency has been proved in laboratory tests and in practical field applications.

Among these products are three fungicides, each designed to serve different and particular needs in preventive and curative control of fungus diseases.

Supporting these fine products is the expertise of your Gordon distributor. His technical training is backed up by the Gordon Technical Service Department, to which he has a direct line. Between us, we find solutions.

Call your distributor on specific questions or for help in reviewing your entire turf program. He wants to help.

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BOARD *from page 71*

breeders involved in variety development. As new disease problems develop and as new cultural systems are implemented there will be a need for new varieties or mixtures in the turf industry.

We look forward to the annual visit of turf experts from throughout the world each spring. The exchange of information with these visitors benefits the entire turfgrass industry.

Paul N. Voykin

Paul Voykin has been chief superintendent at Briarwood Country Club in Deerfield, Illinois, for 18 years and is the author of numerous books and magazine articles.

Paul, born in Canada, began his agronomic apprenticeship as a golf course superintendent in Jasper National Park in Alberta, Canada. Since moving to the United States he has worked as assistant superintendent at Olympia Fields Country Club, head superintendent at Calumet Country Club, and as chief superintendent at Briarwood. He is past president of the Midwest Golf Superintendent's Association and formerly was a commissioner for the Lake Bluff Park Board.

Voykin has authored two books; "A Perfect Lawn the Easy Way", published by Rand McNally, and "Ask the Lawn Expert", published by MacMillan & Co. Paul has had articles published in *Golf Business, Golf Digest, USGA, Home and Garden,* and *Flower and Garden*

I seriously believe we have an overproduction of young talent. Too many young men are underqualified and they are going for low, low salaries, undercutting the more qualified people who should be getting the top jobs in our profession.

The supreme short cut to golf course problems is a qualified and experienced golf course superintendent. And they, like a good golf professional and good club manager, don't come cheap. Sadly, and incredibly, some clubs look only at how cheaply they can get a superintendent and not how good he is.

To all the young men coming into our profession I want to say this, "All your degrees and diplomas, all your microscopes, books, and thermometers won't be worth much to you, to our profession, and to the clubs you seek to work for, unless you first get some practical experience from a qualified superintendent in your area." **WTT**

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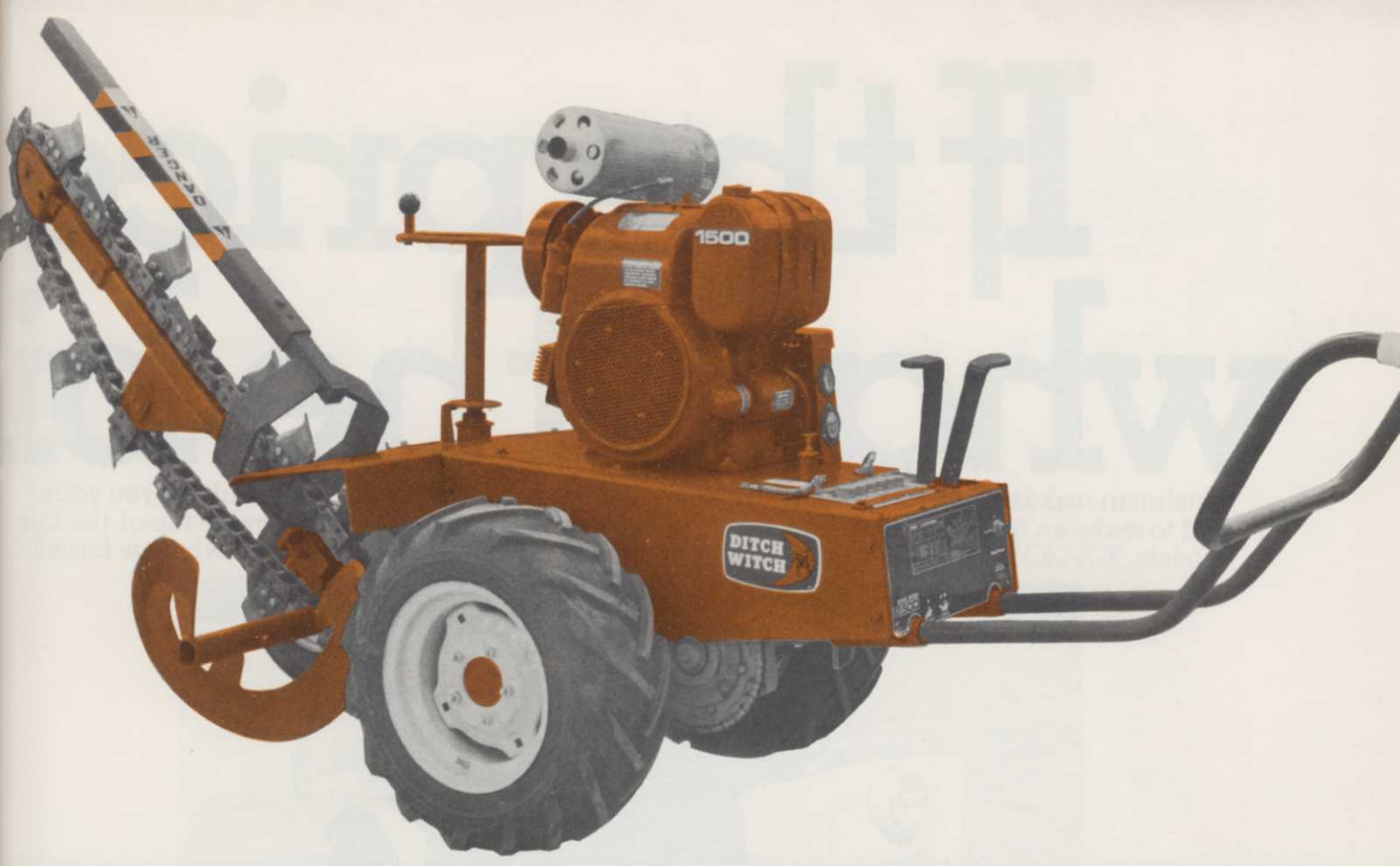

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Ditch Witch introduces the Model 1500... a totally new handlebar trencher design bringing you muscle to match larger equipment... plus new ease and convenience.

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The 1500 digs trench to 5-foot depths, widths to 12 inches. To really appreciate its new design, you need to see it in action. Call your Ditch Witch dealer for a free job site demonstration. Charles Machine Works, Inc., Post Office Box 66, Perry, Oklahoma 73077. TWX 910-830-6580. For the name of your nearest dealer, Call Toll Free (800) 654-6481.

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Cushman makes a fine turf vehicle. But does it equal E-Z-GO? It's often difficult for you yourself to make an honest comparison. So we've done it for you. We took comparable top-of-the-line models, E-Z-GO's GT-7 and the Cushman Turf Truckster. Head to head, here's what we found.

Power Source: 18 horsepower OMC engine, tightly compartmentalized. Ground speed 0 to 22 mph.

Braking: Hydraulic internal expanding.
Payload: 1000 pounds.

Suspension System: Torsion bars, leaf springs, front and rear shocks.

Dump Construction: Single wall, no undercoating.

Headlights: Single.
Seating: Single seat for one passenger with back rest and hip restraint.

Price: Virtually the same.

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Power Source: A rugged, reliable 18 horsepower Onan engine with the power to carry a full payload up to 24 mph. Substantially larger engine compartment for easier maintenance.
Braking: Improved hydraulic internal expanding.
Payload: 1500 pounds. A massive 50% greater carrying capacity than Cushman. More cubic space for greater material volume.
Suspension System: Heavy duty torsion bars, leaf springs, front and rear shock absorbers, designed to support the bigger payload.
Dump Construction: Dual wall, double thick for heavier loads, longer life. Undercoating for even greater resistance to corrosion.
Headlights: Dual lights for greater night vision.
Seating: Dual seats for two passengers with individual back rests and hip restraints, constructed for larger men, greater comfort.
Price: Virtually the same.
Summary: E-Z-GO carries a greater payload, is easier to maintain, is larger, more durably built, and safer with a wider wheel base. E-Z-GO uses top quality components from companies, such as Bendix, Borg Warner, Dana, Onan, and Rockwell International.
For the complete story on the E-Z-GO GT-7, a demonstration on your course, contact your E-Z-GO distributor. For his address check your Yellow Pages or call or write Mr. William Lanier, E-Z-GO, P.O. Box 388, Augusta, Georgia 30903, at (404) 798-4311.

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EFFICIENCY CAN INCREASE BY PRUNING YOUNG TREES

By Douglas J. Chapman, Horticulturist, Dow Gardens, Midland, Michigan

Pruning is one important area which offers a municipal forester and, to a lesser extent, grounds and golf course superintendents flexibility to manage trees and administer the department.

The key things to consider when setting up a pruning program include time, age and vigor of trees, and management of people resources. The old adage of "prune whenever the saw is sharp" is not optimal for wound closure or tree health. Current research by Shigo, Hart, et al clearly shows that there are two times each year to prune — March until bud break and August. Although pruning in March until bud break is far superior, another flush of growth (cambial activity) occurs in August which results in rapid compartmentalization and initial closure of wounds. Pruning during the fall or periods of decreased cambial activity results in slower closure, thus a greater opportunity for heartwood decay.

Age of the trees dramatically affects the time required to prune and for wound closure. The traditional five- to six-year pruning cycles are rarely completed on schedule. Normally, large, mature trees require more time to prune; hence, greater cost per tree. Not only is this economically difficult under today's municipal financial conditions, but the pruning wounds are larger and more numerous, increasing the chance of tree decline and/or decay. Many times the more mature plant isn't vigorous enough to compartmentalize the wound, thus heartwood decay and decline of the tree are the end product.

Crews can prune sixty trees per day, rather than five, using less equipment.

Many municipal foresters should conside a stated policy of "prune only newly transplanted trees at planting and again two and four years after establishment." This would mean that pruning crews would be able to *minimally* prune forty to sixty trees per day, rather than two to five, using far less equipment. This increase in efficiency would allow the municipal forester to give pruning the highest priority in the spring, while still being actively involved in a tree planting program. The trees could be pruned to a central leader, leaving good wide angle branching.

These trees, pruned correctly when young, two to three times and not pruned after the fourth year (on the street), except to remove dead or storm-damaged branches, would be trained to develop a sturdy structure which is better able to withstand severe storms. Further, since the branches and wounds on young trees will be small, most rapid wound closure would result. Spring pruning might also be an opportunity to surface apply fertilizer, further maintaining the vigor of these trees.

Many may consider pruning only young trees a pipe dream, but consider how beneficial it would be to have pruned the trees two to three times early during their growth. By doing so, developing a structurally-sound tree versus the five-year pruning cycle which, due to time and finances, is rarely completed and is always a catch-up emergency repair operation.

A city forester, in addition to being an arboriculturist, must also be a manager of human resources. One would expect that time and manpower saved by pruning only young trees could then be put to work on the many other high-priority programs which are difficult to accomplish — tree fertilization, new tree planting, insect and disease control.

This young tree pruning concept gives the municipal forester an opportunity to be a professional manager and arboriculturist, i.e. one who develops, trains, and improves the health of city trees under his care. **WTT**

ARBOTECT® 20-S
The strongest Dutch elm disease protection you can give a tree.

ARBOTECT 20-S fungicide helps make it possible to save many elm trees that otherwise would be lost.

Injected into the trunk of the tree, ARBOTECT builds a barrier against Dutch elm disease inside the tree itself. It helps prevent the disease in healthy elms, and can often save infected trees if they are treated early enough.

Used along with sanitation, insect control, and root graft elimination, ARBOTECT can significantly improve the effectiveness of a Dutch elm disease control program.

ARBOTECT differs from other elm fungicides in several important ways:

- It is registered at rates high enough to be effective.
- It is concentrated, requiring much less water for injection, so trees can be treated much faster.
- Thiabendazole, the unique active ingredient in ARBOTECT, is highly effective against *Ceratocystis ulmi,* the fungus that causes Dutch elm disease.
- Even though it is more effective and convenient, ARBOTECT costs about the same to use as other elm fungicides.

This year, put ARBOTECT to work in your disease control program. It's the strongest protection you can give an elm against Dutch elm disease.

Arbotect
Strong protection for elms.

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VEGETATION MANAGEMENT

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

Q: *Has there been much progress lately in improvement of grass growth regulators (to save mowings)?*

A: A number of growth retardants have been researched for turf, and a few such as maleic hydrazide (Maintain 3, MH-30, Slo-Gro, Retard and chlorflurenol [Maintain CF-125]) are available commercially.

Unfortunately, growth retardants are expensive and the results unpredictable. The response from retardant applications is influenced by temperature; rainfall; time, rate and uniformity of application; and turfgrass species and vigor. Most of the chemicals cause yellowing of the grass blades and reduced tillering and rooting, which can have a long-term effect on turf health and density.

The use of growth retardants currently labeled for turfgrass should be limited to low-maintenance, hard-to-mow areas such as median strips and road banks.

Q: *At what temperature in the spring would 2,4-D, Dacthal W-75, Endothal, Paraquat have any effect on sprayed weeds?*

A: For broadleaf weed control, 2,4-D is effective above freezing, but maximum effectiveness requires actively-growing weeds which occur above 50° F.

Dacthal W-75 is a pre-emergent herbicide that controls germinating seedlings. The temperature at which seeds germinate is dependent upon the species, but if you are primarily concerned with crabgrass, the temperature is about 55° F.

You don't mention the intended use of Endothal, but if it is for aquatic weed control, the weeds should be actively growing, which occurs above 60° F.

Control with paraquat is not temperature-dependent but is affected by the amount of light.

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