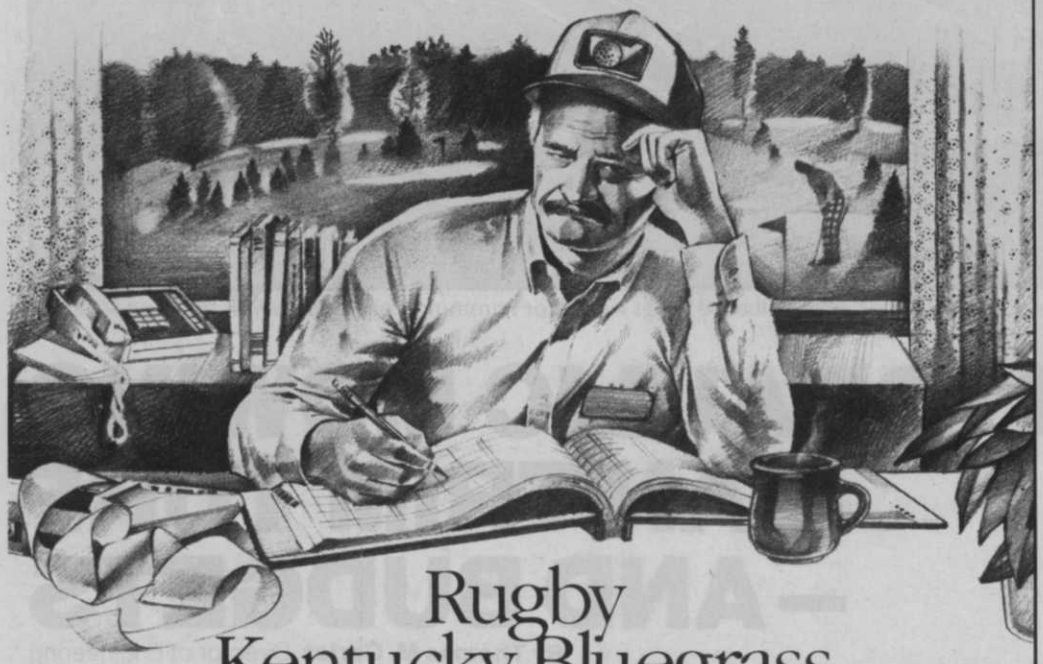
KNOWING QUALITY TURF ISN'T ENOUGH. TODAY'S TURF MANAGER HAS TO MANAGE MONEY, TOO.



Rugby Kentucky Bluegrass grows rich on a lean budget.

Growing rich, green turf in today's economy is akin to being between a rock and a hard place.

Most Kentucky bluegrasses demand their fair share of nitrogen and water. But nitrogen and water, like the time needed to apply them, are money. And money is tight.

Fortunately, Rugby Kentucky Bluegrass is not like most bluegrasses. It's designed to get by on less.

In test plots grown in diverse climates from Manitoba to Oklahoma and California to Virginia, Rugby demonstrated superior tolerance to environmental stresses. Its most notable attribute, however, is its ability to thrive on *little or no nitrogen* and *moderate moisture.*

In addition to saving the costs of time and materials involved in watering and fertilizing, Rugby's environmental tolerance means extra vigor in resisting disease.

In overall tests, Rugby scored above 29 other Kentucky bluegrasses in resistance to *Fusarium blight,* and was second highest in resistance to leafspot. It has also shown good ability to avoid the perils of powdery mildew, dollar spot, and stem rust. And if there's anything that can chew your budget to bits, it's the unplanned purchase of fungicide for sick grass.

So the next time you're sitting down with the books, don't get lost in all the worry of red and black ink. Instead, think of the rich, green density of Rugby Kentucky Bluegrass. And how its low-maintenance features can help you out of a tight spot.

For more information, write: Rugby, P.O. Box 923, Minneapolis, Minnesota 55440.

Rugby
KENTUCKY BLUEGRASS
For low-maintenance turf

Circle No. 144 on Reader Inquiry Card

This new, *compact hydraulic mowing tractor, with outboard gangs raised for trimming, can put a smooth finish on 50 acres of turf in an average shift.*

HYDRAULIC MOWING CAN TRIM TURF —AND BUDGETS

By Thomas M. Carter Director of Engineering
Jacobsen Div. of Textron, Inc.

The broadening use of hydraulics, a strong, long-term trend in turf care equipment development, is making a significant expansion in medium and smaller heavy-duty utility mowers.

The new hydraulic mowing applications that are now here deliver even greater operator convenience and safety, machine productivity and versatility and operating economy for both riding rotary and reel mowers that cut swaths from five to fifteen feet wide.

In addition, hydraulics raise their reliability to new highs, produce better quality cuts, and reduce maintenance by up to 50 percent as I will explain later in this article.

Hydraulics, of course, are not unknown to smaller utility mowers and other turf care equipment. Hydrostatic transmissions are commonly used in our machines, with forward and reverse controlled by a single foot treadle. Hydraulics are also used for raising and lowering cutter decks and reel gangs by actuating another single foot pedal.

By themselves, these applications enhance maneuverability in trimming, moving over obstacles such as curbs and in swift transport. They also take virtually no operator effort, and, by the very simplicity of hydraulics, already have eased maintenance considerably.

To fully appreciate the many benefits of hydraulic mowing, the unique advantages of hydraulic systems over other forms of power transmission should be reviewed.

First, a hydraulic system is relatively simple, consisting of fluid, reservoir, pump, valve lines and motor or cylinder. Fluid from the reservoir, put under pressure by the pump, is controlled by the valve in the line as it moves to the motor or cylinder that raises a cutter deck, rotates reels or rotary

Continued on page 56

The North's best kept secret is out.

We've told you about Omega Turf-Type Perennial Ryegrass before. We told you about its dark green color, its wide range of geographical adaptability North to South, and its excellent performance on athletic fields, golf courses, parks and home lawns.

What we haven't told you is that Omega has proven cold tolerance from the Mason/Dixon line upwards. Omega scored consistently high marks in trials conducted at the University of Vermont.* In the 1979 Traverse City, Michigan turf trials, Omega rated first in overall performance. Its incredible appearance was largely due to snow mold resistance. Omega also shows good resistance to Rhizoctonia brown patch.

When your winters are treacherous, it's good to know that Omega will Spring back when the snow melts.

PVP No. 7600028

*Alcohol freezing bath tests

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®SENCOR herbicide gets goosegrass out of your Bermuda grass.

The Mobay family of professional turf products is offering you rebates that could mean hundreds of dollars of savings to you. To qualify, you must be a professional turf consumer* and you must be invoiced by April 15, 1983. Then, send copies of all qualifying invoices to the address below by May 15, 1983. You'll receive your check no later than July 15, 1983. Order early, order now, from your Mobay distributor.

*A professional turf products consumer will be described as lawn service companies, golf courses, municipalities, cemeteries, parks and recreational facilities and all other entities which commercially and professionally maintain fine turf.

OFTANOL, BAYLETON, and SENCOR are Reg. TMs of the Parent Company of Farbenfabriken Bayer GmbH, Leverkusen.

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All purchases must be made between October 15, 1982 and April 15, 1983, in order to be eligible for rebates.

Amount of Rebate:

Product	Purchase Quantity	Rebate Value For Each Unit
BAYLETON 25 WP	12# case	$10.00/cs.
DYRENE 50 WP TURF	32# case	5.00/cs.
OFTANOL 5G	40# bag	2.00/bg.
SENCOR 75 TURF	30# case	8.50/cs.

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blades or performs other work. Compared to the complexity of mechanical linkage needed to do the same job, a hydraulic system is truly an uncomplicated device.

Another characteristic of a hydraulic system is that it offers more power in a smaller package, reducing equipment weight and increasing economy. And, because power is transmitted by fluid through tubes and hoses that can be easily routed, components can be located more advantageously. Control is better, too. For example, a single lever opens and closes a valve, providing infinite adjustment of the power applied as it is moved.

Downtime is not only reduced by the simplicity of the system itself. Relief valves are built in to protect against overload, making unexpected maintenance due to shock loads almost nonexistent.

Finally, because power is transmitted through a fluid, a hydraulic system is uniquely smoother and quieter in operation compared to mechanical devices. This feature has become increasingly important to equipment users, with or without government noise abatement laws.

While these systems are virtually failure-proof, with the chance of leakage fairly remote, a breach in the system could occur, allowing fluid to escape onto turf.

Should this happen, it is essential to rinse the turf immediately with water or a soapy solution. Warm or cool oil can suffocate grass while hot fluid—say from a transmission—can actually cook it, turning the blades white.

Contrary to some beliefs, the dyes in hydraulic fluids will not damage turf. They are used to color code the fluid, simplifying identification for proper use of specific products as well as to aid in leak detection.

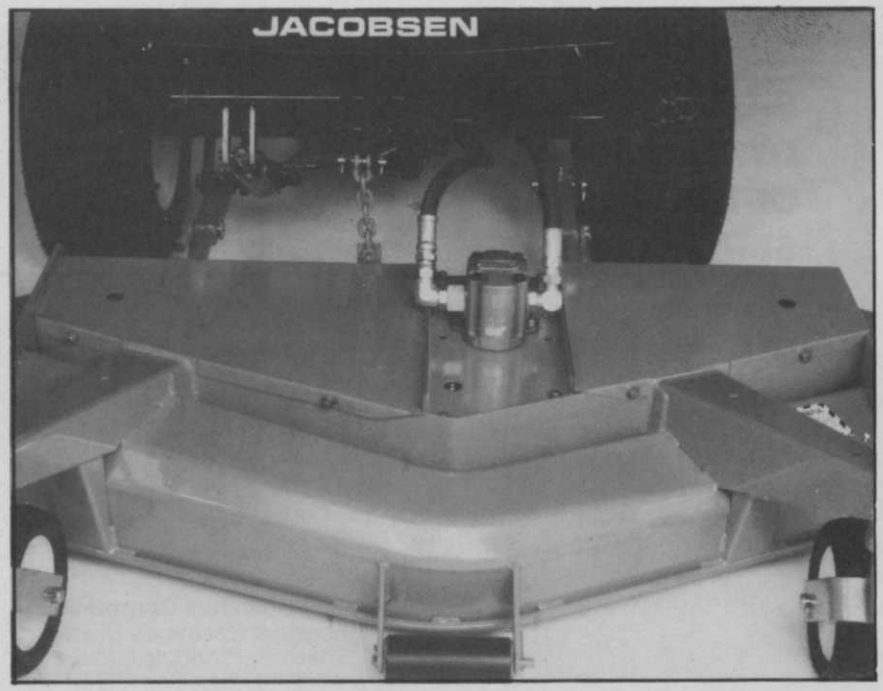
Preventing a leak is a matter of preventative maintenance, that is establishing a procedure of routinely checking tubes, hoses and fittings, and other components for evidence of leakage, wear or looseness. This could be a part of an overall check before the machine moves out onto the turf and when it returns.

This riding mower's *hydraulically driven cutter blades make short work of field grass. A snowthrower, dozer blade or rotary broom can be attached in place of the cutter deck to handle other chores throughout the year.*

Translating these characteristics to hydraulic mowing in medium and smaller heavy-duty turf machines we find they create benefits beyond the inherent advantages we have listed.

A more compact machine results from hydraulically driving the blades—a machine that is easier to handle and more productive and maneuverable. The weight saved over the mechanical system results in less compaction, and, therefore, healthier turf and less need for aeration later on.

This machine takes on new versatility, too. Plug-in hydraulics expand its utility, making it easy to remove the cutter deck and attach



The hydraulic *implement drive simplifies power transmission by eliminating belts, drive shaft, bearings and P.T.O. shaft/gearbox.*

a snow thrower, rotary brush or flail deck.

This system is also totally enclosed and, therefore, protected from the environment which in turf care work can be quite dusty. Another plus is that the flow of hydraulic fluid acts as a built-in cooling system.

Because a mowing unit such as this, with a cutting capacity that can range from five to six feet depending on the deck selected, may be frequently used near buildings, transmitting power to the blades hydraulically significantly reduces noise levels. The importance here goes beyond meeting current and future restrictions. It cuts operator fatigue. The smoother flow of fluid power minimizes vibration, too, another benefit for both man and machine.

Most of the advantages listed for the rotary apply to a hydraulic reel mower as well. But it has others that are uniquely its own.

Designing machines that perform well and economically is a real engineering feat.

By simply moving one lever, cutting frequency can be infinitely adjusted for the type of turf, its height, time of year and other variables. Because reels are not driven by traction, rotation remains at the set frequency despite changes in machine speed or turf conditions such as wetness. And since the reels can be driven faster, actually mowing an area in less time than larger, much heavier equipment. This can mean a reduced capital expenditure and a savings in labor costs.

Hydraulic power is generated by a second hydrostatic unit placed back-to-back with the one for the transmission. Besides driving the reels, it power-assists the steering, making the machine exceptionally easy to maneuver. In fact, because most of the mechanical linkage for steering has been eliminated, a tilt wheel has been added for better human engineering.

On the safety side, reels can be instantly stopped or started, and automatically disengage when gangs are raised.

Hydraulics also lend themselves to improved machine protection through the use of monitoring devices that with warning lights and buzzers signal the need for attention before problems occur.

And adding to the productivity of these new machines are diesel engines that require far less attention than gas power, deliver better operating economy and have longer lives.

Not only will the new wave of hydraulic mowing machines cut more turf better, they promise to give grounds maintenance budgets a proper trimming, too. And, in these days of scarce dollars, designing machines that perform as well in the field as they do on a ledger is a real feat in industry-responsive engineering. **WTT**

JUST PUBLISHED

Turf Management For Golf Courses

By James B. Beard

Jim Beard, the turfgrass professor from Texas A&M and Michigan State University, who has given the turf and golf industries a great deal in **Turfgrass Science and Culture,** a lab manual to Science and Culture, and **Turfgrass Bibliography,** has established himself as the leading author in golf course management with the recent publication of **Turf Management for Golf Courses.**

The book is sponsored by the United States Golf Association Green Section and meets its intended purpose of updating two previous USGA books; **Turf for Golf Courses** by Piper and Oakley in 1917 and **Turf Management** by Musser in 1950.

The comprehensiveness of Beard's new book is unsurpassed in previous publications. **Turf Management for Golf Courses** can replace an assorted four or five books previously needed to supply the information needs of golf course superintendents and greens committeemen. Its price of nearly $50 might stagger some people, but there is little question of its value.

This is not just a book by one person, even someone as recognized as Beard. USGA's regional directors were on the editorial board and seven superintendents made up a review board for the project. Clearly, Beard preserved much of the historical and basic material of Piper, Oakley, and Musser. From his work on the **Turfgrass Bibliography** he clearly values and utilizes the work of previous authors.

Turf Management for Golf Courses is more than 600 pages in length and consists of 12 chapters. Highlights include Great Golf Holes, cultural system specifications for each site and turfgrass type, a color section on turfgrass diseases, a very thorough section on symptoms of turfgrass injury, and clear explanation of the mathematical calculations required to perform management duties. The history section gives valuable background on the development of current techniques.

Beard discusses course construction, irrigation design, and even getting ready for tournaments. In fact, there is little if anything missing. By using this book a superintendent could almost insure his job.

In future editions, perhaps, Beard can include history of more contemporary superintendents and what

40° or above should be considered. This will control aphids, many scales, and mites.

Dormant oil should be applied to the point of runoff. One should use highly refined oils, e.g. 80- 90- or 100 second oils. These highly refined superior plant oils (100 sec.) have little or no phytotoxic effects and can be used on a broad variety of plants. The mode of action of these plant oils is to smother the eggs of these sucking insects, thus only total coverage of the plant will result in control.

Several plants that often have heavy aphid populations include linden, ash, and crabapples. These plants almost warrant some annual control.

There are several plants that are particularly sensitive to dormant oil and, therefore, one should not apply it to these plants, e.g. birch, beech, hickory, or walnut (that is, the thin-barked trees). Further, if one has a 'Moerheimii' or Colorado "blue-type" spruce, dormant oil would eliminate or remove the bloom but will not injure the plant.

Early spring is also a time for **fertilizing.** It has been clearly shown from studies by Heimlich and Neely at the University of Illinois, and my studies at Ohio State, that timing results in the maximum effect of fertilization. That is, the same amount of fertilizer will have a more positive impact on the health and vigor of the tree when applied on or before the 15th of April (commencement of growth), when frost is out of the soil. Fertilizing at other times of the year could be beneficial but will not have as much impact.

When assessing your landscape, you note some decreased rate of growth on some trees, then early spring fertilization is paramount. Further, it is a cost effective task to combine tree fertilization with turf fertilization at this early time. **WTT**

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they have done for the industry. Also, the wide columns and small type make the otherwise well-designed book harder than necessary to read.

If there are 12,900 golf facilities in the U.S., then 12,900 superintendents should buy this book as should each greens committee. This book will carry the standard for golf course management just as its two predecessors did for 20-30 years. It may be too expensive for students, but certainly it is worth spending $46.75 to protect the business and property of a golf course.

Bruce F. Shank, editor

Landscape Log Continued from page 62

the flowering since the flower buds are formed on current season wood. These would include: Butterfly-bush *(Buddleia davidi)*, Summersweet *(Clethra alnifolia)*, Rose of Sharon *(Hibiscus syriacus)*, and European Cranberrybush *(Viburnum opulus)*.

Rejuvenation of shrubs is a particularly important consideration in pruning the plant back to six inches from the soil and allowing the shrub to come up from the suckers. This is another way to have new plants by reworking old shrubs while correcting neglected plants. This spring rejuvenation has saved many landscapes.

The application of dormant oil is one of the most effective, yet environmentally sound practices for control of sucking insects. The outstanding grounds manager or plantsman is constantly reviewing conditions of the landscape. While pruning one has opportunity to assess the plants for disease and insect problems.

If sucking insects are a problem, then the application of a dormant oil any time during March when the temperature is

VEGETATION MANAGEMENT

By Balakrishna Rao, Ph.D., Plant Pathologist and **Thomas P. Mog, PH.D.,** Pest Management Specialist
The Davey Tree Expert Company, Kent, OH

Q. *I raise Christmas trees, and my biggest problem is transplant survival. Can you recommend something that will cut my losses? (Pennsylvania)*
A. Transplanted seedlings frequently die during the first year because of poor water relations. Roots may dry-out before the stock is planted. Insufficient rainfall and/or poor root development after planting also result in transplant mortality. Watering helps transplanted ornamentals become established but may not be practical or economical on a large scale basis such as a tree farm.

Survival would be greater if we could insure an adequate water supply during the first season. Perhaps science has come to the rescue in this regard. Miller Chemical and Fertilizer Corporation is marketing a new product under the trade name LIQUA-GEL, which is chemically related to the starch graft polymers invented by the USDA. When added to water, the material forms a thin slurry. LIQUA-GEL should absorb 800-1000 times its weight in water. The gel-like slurry clings tenaciously to roots.

The performance of slurry-dipped Christmas tree planting stock was evaluated in Michigan, Pennsylvania and Wisconsin. The reports were encouraging. Ohio State University reports that transplant survival was dramatically increased and early growth was improved.

Apparently, the gel-like coating protects the roots from dehydration while out of the ground and provides water to the transplant for nearly a year. Water absorbed and stored by the material is released to the plant as needed. Water given to the plant is replaced as the material absorbs moisture from the surrounding soil. We have not tested LIQUA-GEL, but if it performs as well as information indicates, it would solve a common problem in the tree-growing industry.

Q. *A client has inquired about an adverse effect of cultivating around shrubs. I have been in landscape and maintenance business many years and feel that this practice to control weeds and feed the plants is not harmful.*
A. I believe there is a misconception concerning keeping shrubbery borders of foundation plantings weed-free by cultivation. For best results, use an organic mulch to keep the area weed-free and to provide other mulching benefits, such as moisture retention. With the use of mulch, cultivation around plantings is generally not necessary, is of no advantage, and may result in root injury.

Surface roots of many ornamental plants can be severely injured, even by careful cultivation practice. Most active roots are located near the surface within the dripline of the plants. It is not even necessary to cultivate once or twice a year to incorporate dry fertilizer, since the material can be penetrated by watering or rain.

Q. *Can you recommend a chemical which could be used effectively against road salt injury to home lawns? Some of our lawn care clients are interested in such a treatment. (Minnesota)*
A. Chemical control of road salt accumulation in a lawn is very difficult. Gypsum is a possibility but often not practical because it takes up to 200 lbs. per 1000 square feet of lawn. Gypsum replaces harmful sodium with calcium and improves soil structure. For best results gypsum treatment should be done very soon after the salt application. Best solution is heavy watering and leaching the salt. Often Mother Nature can help in this situation with good rains; if not, do consider heavy watering.

Q. *Dogwoods are a favorite flowering tree of many species and colors. The main problem has been borers. Why do the same trees get borers year after year while others are never bothered? (Virginia)*
A. The dogwood borer was discussed at the recent International Society of Arboriculture Meeting.

Exposure, wounds, crown dieback, blossom color and tree size were studied. Reports indicate that dogwoods in full sun are three times more likely to be attacked by borers than trees in full shade; wounded trees are twice as susceptible to borers as trees without wounds; trees with crown dieback are more susceptible to borers than healthy trees; and dogwoods with pink flowers were more heavily infested. No clear-cut relationship was found between tree size and degree of borer attack; however, young trees were most often infested near the ground.

Cultural practices which reduce borer problems are: avoid pruning just prior to and during adult flight, remove badly infested trees, maintain tree vigor with water and fertilizer, wrap trunks of newly planted trees and brace.

Q. *We have used Trimec in our lawn care programs for a number of years. In recent years, many organic-minded persons are concerned about the 2,4-D contamination and its effect on human and other environment. Please update us on present status of the issue. (New Jersey)*
A. Your question is a hot and timely issue because of widespread, adverse publicity. Reports from a leading toxicologist at a recent international meeting indicate that exhaustive studies show that 2,4-D does not remain in the body, even at very high doses, does not accumulate in body fat or tissue and is excreted from the body in the urine. Studies have shown that the maximum amount of 2,4-D absorbed by applicators using backpack sprayers is about 1/1000 of the 'no-observable-effect' level, or the point where some effect might be expected, although this kind of equipment causes the highest occupational exposure.

No scientific evidence exists to support charges that regular use of herbicides causes birth defects. Epidemiological studies of human populations have failed to show any impact of herbicides on human health.

Much of the present fear of pesticides, including weed killers like 2,4-D, is attributed to the lack of exposure of the public to the true facts.

Send questions or comments to: Vegetation Management c/o *WEEDS TREES & TURF*, 7500 Old Oak Blvd., Middleburg Heights, OH 44130. Allow at least two months for Roger Funk's response in this column.