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Rhodia Inc., Agricultural Division, Somerset, New Jersey 08873

"End of Line" Says Cushman

Outboard Marine Corporation announced that it will cease the manufacture and sale of its Cushman golf cars when the current production schedule is completed in December 1975.

Charles D. Strang, president of this manufacturer of Evinrude and Johnson outboard motors and other leisure products, stated, "Earnings from our golf cars have been declining for several years, and we incurred losses from the sale of this product in 1974 and in the current year. Increased competition from low-priced foreign imports has been a significant factor in this deteriorating profit picture." Strang added, "Careful analysis has convinced us we can utilize our capital and personnel better on other products."

Strang indicated that golf cars represented approximately 2 percent of OMC's total sales in its 1974 fiscal year. He also commented that present estimates of the loss resulting from the phasing out of golf car operations will not have a material effect on OMC's earnings. He stated, "Preliminary data indicates that OMC net earnings for the July 1975 quarter will exceed \$1.50 per share, after reflecting estimated golf car losses. The company's net sales for this third fiscal quarter should exceed \$155,000,000." In its strike-affected quarter ended June 30, 1974, OMC reported earnings of 44 cents per share which was restated for subsequently discontinued snow vehicle operations to 69 cents per share on sale of \$123,200,000, both on continuing operations.

Herbert A. Jespersen, OMC vice president and division manager of the OMC-Lincoln division said, "Commercial and turf vehicles and parts which represent approximately two-thirds of Cushman's sales are unaffected by today's decision. Consistent with OMC's policy, service and parts for golf cars will be available for a minimum of seven years."

expedite analyses and collection of data for minor-use pesticide clearances. CSRS said the need for such laboratories was evident after passage of the 1972 Federal Environmental Pesticide Control Act, which increased requirements for registration of pesticides.

Scientists in the Western region have developed a list of 50 chemicals that need registration so they can be legally used under the new law. According to the scientists, there are an enormous number of chemicals which are not presently registered for use on ornamentals, grass, and seed crops, but are sorely needed in production practices.

The laboratory at Davis will serve the western states of Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming, and Guam. Wendell W. Kilgore, Chairman of the department of environmental toxicology of the University of California at Davis, is the laboratory's principal investigator.

Lethal Yellowing Research Boosted by New State Funds

Intensified research efforts, boosted by a special \$200,000 state appropriation, are now underway as Florida scientists seek answers to lethal yellowing, the mysterious disease killing thousands of the state's scenic coconut palm trees.

The disease, first spotted 20 years ago in Key West, is creeping northward and now endangers over a half million coconut palms throughout the southern half of Florida. Swaying palms that once graced picture post cards are left bare, looking like a string of telephone poles. Fears are that unless the disease can be stopped it will continue northward posing a threat to coconut and possibly other palms throughout the State.

Backed by the new research funds from the state legislature, a team of scientists from the University of Florida's Institute of Food and Agricultural Sciences (IFAS) is hoping to find the missing pieces of the lethal yellowing puzzle.

The scientists, based in Fort

Standard Oil Subsidiary Files Appeal for More Gas

The Standard Oil Co. (Ohio) and its subsidiary, Vistron Corporation, have appealed to the Federal Power Commission for help in obtaining adequate supplies of natural gas to produce needed fertilizer.

The natural gas is used in the nitrogen fertilizer plant at Vistron's complex at Lima, Ohio which is the exclusive source of nitrogen fertilizer for nearly all of Sohio's 108 bulk blend plants in Ohio, Michigan, Indiana, Illinois, Iowa, Missouri and Kansas.

"Curtailments earlier this year from our supplier, Columbia Gas of Ohio, Inc., ranged from 30 to 55 percent of normal deliveries," Stevens said, "and seriously crippled Vistron's production."

He said Columbia Gas recently notified Vistron that deliveries will be reduced by 60 percent, beginning November 1, for the five-month winter period which would further aggravate the present shortage of fertilizer.

Vistron asked the FPC to direct Columbia Gas to deliver an average of 50,070 mcf per calendar day and 54,960 per operating day to produce the required amount of fertilizer for Vistron's customers.

USDA Appropriates Funds, Speeds Pesticide Clearance

Data for clearing pesticides for uses not presently filled by industry registrations will be developed by the University of California at Davis under a \$50,000 grant from the U. S. Department of Agriculture (USDA).

The Davis campus' department of environmental toxicology has been designated as the leader laboratory for the western region — one of four regional laboratories — to develop and implement a program to help register pesticides for uses on minor or specialty crops.

USDA's Cooperative State Research Service (CSRS), which made the grant, said Davis and three other regional laboratories would

Lauderdale, seek the cause of the disease, how it is transmitted and how it can be stopped. Lethal yellowing began in Jamaica almost a century ago. It spread to other areas hitting Key West in 1955. From 1955 to 1968, it killed about 15,000 coconut palms in Key West, then jumped to Stock Island, then Key Largo, then Miami and Coral Gables and now has crept as far north as Juno Beach in Palm Beach County.

A quarantine is now in effect for movement of a dozen species of palms, including the coconut palm, out of Broward, Collier, Dade, Martin, Monroe, and Palm Beach Counties — all affected areas.

The symptoms of lethal yellowing begin with "shelling" or the premature dropping of coconuts. Leaves die, turning brown and yellow. The tree soon dies, usually within six months of exhibiting the first symptoms of the disease.

From former research, IFAS scientists have some clues to help solve the lethal yellowing mystery. Indications are that the disease is caused by a tiny microorganism called a mycoplasma-like organism or MLO. MLO's are like bacteria but have a soft rather than rigid cell wall like bacteria. Evidence seems to indicate the MLO's are taxied from tree to tree by insects taking up residence on coconut palms and it may be any one variety providing the free taxi service. "There certainly are a good many pieces we need to complete this puzzle," said Dr. L. H. Purdy, chairman of the IFAS Plant Pathology Department.

Infected trees can be granted some borrowed time by injecting doses of an antibiotic into the trunks under about 80 to 100 pounds of pressure. These injections hold off the symptoms for about four months when another injection is required, explained Dr. Purdy.

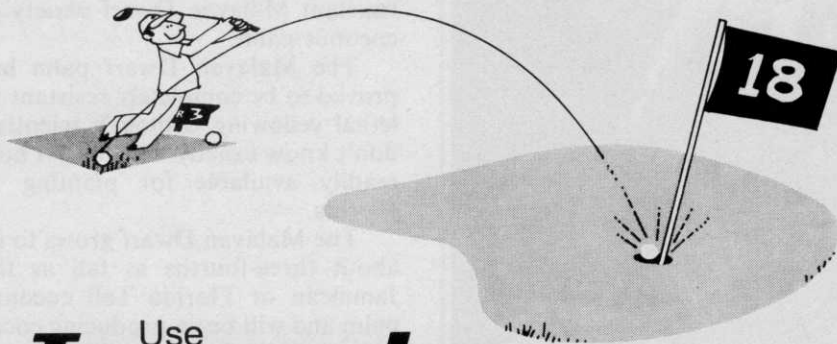
Meanwhile, as research continues, the Florida Cooperative Extension service, the Extension arm of IFAS, is also active in a program to help property owners and government officials stop lethal yellowing.

County agents in affected areas hold seminars and distribute literature to help people identify the disease. Some county agents — such as in Monroe and Collier Counties —

(continued)

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To Fight Cottony Blight, Grease Spot, Damping-Off

Terrazole soil fungicide is your best weapon against Pythium fungi—the cause of grease spot, damping-off and cottony blight in your turf.

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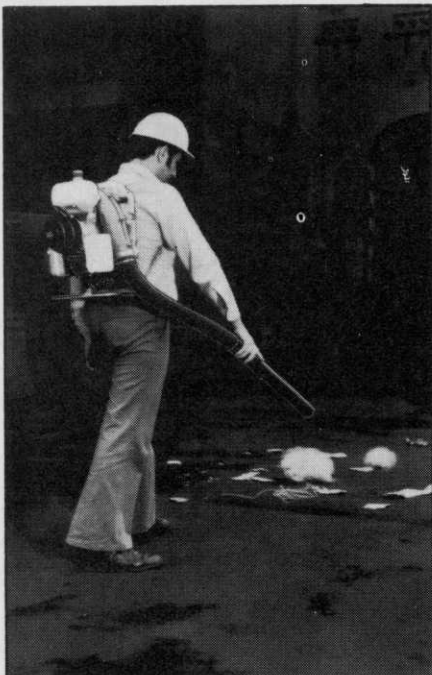
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also help coordinate inspection and injection programs with various government agencies, urge removal of all diseased trees and give instruction on how to plant the disease-resistant Malayan Dwarf variety of coconut palm.

The Malayan Dwarf palm has proved to be completely resistant to lethal yellowing, although scientists don't know exactly why, and is now readily available for planting in Florida.

The Malayan Dwarf grows to be about three-fourths as tall as the Jamaican or Florida Tall coconut palm and will begin producing coconuts at about five feet tall when it is five to seven years old.

Dr. Purdy suggests that injections continue allowing time for replanting of the Malayan variety.

Earning Power Restored Economy Up, Says Simon

Real consumer earning power is being restored and the nation back on the road to economic recovery, William E. Simon, Secretary of the U. S. Treasury Department, reports.

Simon, writing for the Ryan quarterly dealer magazine, said the picture began brightening early this year when inventory backlogs were sharply reduced. He said recovery gained further momentum this quarter when retail sales rose at more than a 10 percent rate.

"That process had to get underway before our economy could rebound," Simon wrote. "Other indicators also show we are poised for a healthy recovery by late this year."

Simon said real consumer earning power has increased because interest rates have tumbled, inflation has dropped out of the double-digit bracket, and tax cuts have provided consumers more disposable income without corresponding inflation.

Although unemployment edged up to 9.2 percent in early summer, and is expected to remain around 8 percent through 1976, Simon says employment has increased for the first time in more than six months.

"That is extremely encouraging," Simon noted. "Our objective the next two years is to ensure strong enough recovery to reduce unemployment, but to avoid infla-

tionary government spending programs that cannot stimulate the economy until we are already moving toward full capacity."

New Superior Tree Seeds Exchanged in Outer Space

A special box containing superior tree seeds developed by the Forest Service, U. S. Department of Agriculture, was delivered to the American flight crew of the Apollo-Soyuz space mission at the Lyndon B. Johnson Space Center. The seeds were given by the Astronauts to the Russian Cosmonauts as part of an exchange of gifts in space during the flight which began on July 15.

The seeds, and their container, are both products of Forest Service research. The seeds are genetically superior white spruce seeds which have been developed by Forest Service scientists to produce faster growing trees of exceptional height and shape. The spruce tree seeds were developed at the Institute of Forest Genetics in Rhineland, Wis., which has a climate similar to that of Moscow in the U.S.S.R. where the seeds will be planted. Enough superior tree seeds to grow an acre are being given the Cosmonauts.

The top half of the box in which the seeds were presented is made from chemically stabilized walnut, a development of Forest Service wood utilization research. The chemically treated wood won't shrink, warp, or rot, and is resistant to bugs, disease and decay.

The bottom half of the container is a composition wood made from 100 percent recycled fiber made from discarded municipal waste. The technique to recycle wood fiber waste material into new products was pioneered by the Forest Products Laboratory in Madison, Wis.

The seeds were recently presented in Washington, D.C., to Chester M. Lee, Program Director of the Apollo-Soyuz Test Project mission of the National Aeronautics and Space Administration by Forest Service Chief John R. McGuire. He said the seeds were symbols of the development of forest resources which has helped the United States and the Soviet Union to become world leaders.

(more NEWS page 38)



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the job in the creation of
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Adelphi
KENTUCKY BLUEGRASS

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Keeping Firestone in Championship Condition

By PETER MILLER, Superintendent, Firestone Country Club

TRACTORS are probably one of the most important pieces of equipment used in a golf course maintenance operation. If you take a look at most golf courses, you will probably see more tractors than any other piece of equipment.

Today, tractors in use range anywhere from a 1940 model to the latest and best equipment on the market. The same tractors are used for a multitude of purposes. My object is to explain in this article just how valuable tractors are to a golf course maintenance operation, particularly the Firestone Country Club.

Going through a list of equipment attached to tractors, whether the pull-behind type or using the PTO and three-point hitch, it becomes obvious that a tractor is a very valuable piece of equipment.

It is probably the only motive force on the market that is capable of handling the number of attachments, different sizes, shapes and descriptions, and still provide an excellent service record. I am sure that most people on golf course operations are aware that when a piece of equipment is advertised to do many things, that in most cases, the equipment will do one or two things well. In most cases, it's better to buy individual pieces of equipment for the other operations.

A tractor is certainly an exception to that situation. I have mentioned numbers of attachments to tractors. We have approximately 42 different pieces of equipment that we use on essentially seven tractors. These tractors are medium size, horsepower-wise, and the majority of them diesel. As a matter of fact, five out of the seven are diesels.

We have approximately 800 acres of grounds to maintain at the Firestone Country Club. Included in these areas are some gardens, which we prepare with a tractor-powered roto-tiller; 80 acres of spectator parking lots where we use our flail mowers and rotary mowers to keep prepared for tournaments; also many miles of roadsides, where we use a tractor-mounted sickle bar.

The golf course itself, of course, is the major area for tractor and attachment use. The list here is quite long. We use tractor drawn aerifiers, slicers, turf quakers, verti cutters, blowers, and obviously for rough usage, mowers.

In all cases, there really is not a suitable replacement for a tractor. In other words, tractors must be used to provide the motive force for these operations.

We will run as many as 1,500 hours a year on these tractors, running them eight hours a day, five days a week, in most cases. This might not seem like a great number of hours to a construction company, but on a golf course, this is a good number of hours considering that the tractor is being used for many varied operations.

(continued on page 32)





Peter Miller, (top left), superintendent of Firestone Country Club, says that tractors are his most valuable piece of maintenance equipment. Shown in the above photographs are just a few of the dozens of different tractor-drawn machines Miller uses to keep Firestone's two courses in top-notch playing condition. Both ends of a tractor-mounted loader-backhoe are put to good use digging ditches and loading topdressing into a dump truck. Transplanting shrubs on Firestone's grounds is speeded with a tractor-mounted auger. Fertilizer, pesticides and herbicides are applied with a tractor-pulled spray applicator. And even working as a team, greensmen operate aerator and blower attachments. Extra parking areas for the 57th PGA Tournament are mowed with a 100-inch rotary pull-type cutter. Miller also maintains a nursery area with a tractor-pulled rotovator.

Efficient Cultural Practices Vital to Sod-Farming Family

PRODUCING high quality turf in the hot, humid Southwestern Illinois climate is not an easy task, but Art Brockmeier of Edwardsville has proved it can be accomplished. He's been doing it since 1955 and his sod has been improving steadily — especially since he has developed added know-how in disease control.

Sod farming is a dawn-to-dusk business for Brockmeier and his wife, Dorothy, and son, Ken, who join efforts on 140 acres. They supply sod for homeowners, golf courses, nurseries, landscaping contractors, industrial plant sites, small businesses and highway median strips. The Brockmeiers alternate the sod with farm crops on part of their acreage and also operate a sizeable fill dirt and top soil business.

They work as a precision team, handling a variety of tasks including seeding sod, spraying chemicals, hauling dirt, cutting sod and working the farm crops. During summer vacations and after school, area high

school students provide additional needed manpower.

Throughout his 20 years as a sod farmer, Brockmeier has always stressed the importance of healthy grass in providing good sod. "The price of our sod is a bit higher than others in this area," Brockmeier says, "but we strive for top quality. I'm a believer in good cultural practices. We fertilize adequately, aerate properly and provide the needed water."

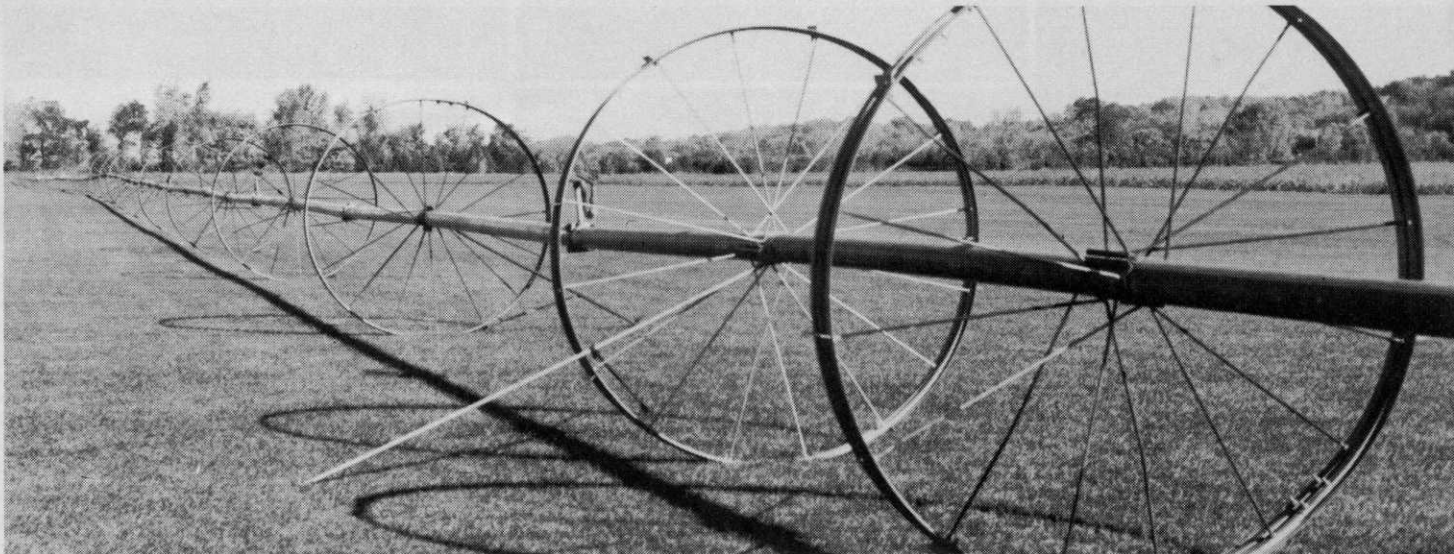
The Brockmeiers have experienced isolated disease problems. Two years ago, at a turf meeting, Brockmeier was convinced by a speaker that the proper use of fungicides could produce still better turf in his normally unfavorable climate.

"Last season, for the first time, I tried a planned fungicide program and experienced unbelievably good results in a dry year," he notes. "Fusarium blight is often a serious problem in our part of the country. It is especially troublesome when the hot, humid weather is followed by a



Keeping America green is more than an environmental theme to Art Brockmeier. These signs on his property communicate to the passerby his dedication to growing quality sod.

Below: Rotating watering systems covers entire length of Brockmeier's sod field. Water goes on evenly as equipment rolls across sod. Sod from this family-owned and operated farm can be found throughout the Edwardsville, Ill. area in lawns at homes, small business and industrial plant sites.



long dry spell. That was the situation in 1974, but 6 oz. of 'Tersan' 1991 per 1,000 square feet controlled the Fusarium blight. We applied it at the first appearance of the disease and repeated 10 to 14 days later."

Early Helminthosporium leaf-spot is another disease that has been a problem for Brockmeier. Last year, he applied "Tersan" LSR at a rate of 4 oz. per 1,000 square feet in 5 gallons of water when the disease first appeared in April. In areas where the disease persisted he made a second application about 10 days later. The disease was controlled. A third material, "Tersan" SP, was used at a rate of 4 oz. per 1,000 square feet in 5 gallons of water to control Pythium blight.

Water is most important both in the growth of healthy grass and in keeping the soil moisture high before and after the fungicide application for Fusarium blight control. We get our water from the Mississippi River Basin and use a field-length, circular watering system which rolls across the field as it waters. I'm now in the process of leveling portions of my fields, as some of the knolls get less water than I'd like, said Brockmeier.

Fertilizer also plays an important role in developing quality sod. "Fertilizer alone won't prevent disease," Brockmeier observes, "but properly fertilized grass is stronger and less subject to attacks by parasitic organisms. We like to use urea if we can get it. In addition, we use 'Tupersan' to control crabgrass and apply an insecticide when needed.

The Brockmeiers have enjoyed success with a number of grasses including Fylking, a mixture of Delta, Newport, Park and common Kentucky blue and a mixture of creeping red and chewing fescue.

"Over the years, we've removed our sod from a newly-seeded field after 18 to 24 months of growth. This way, we don't have to reseed often. We take it about 3/4 of an inch below the soil surface, leaving a portion of the root system. Within three weeks, the grass is beginning to grow back in again. By cutting the sod where we do, the exposed roots aid the sod in taking root in its new environment. After the first cutting, we can figure on a crop of sod approximately every 12 months," Brockmeier says.

In some fields, they alternate turf

with soybeans or wheat. In other areas, they double crop beans and wheat. "We try hard to make the best use of each particular plot of land. Some of the ground is best suited for use as top soil and fill dirt so we are in that business too," he reports.

The Brockmeiers' sod business doesn't stop with the growing of good turf. When the sod is ready, it is cut into neat, unbroken rolls 18

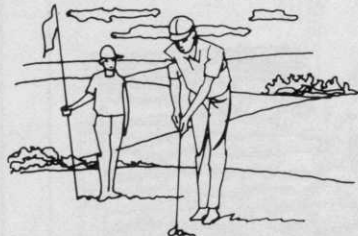
inches wide and 6 feet long (1 square yard) for delivery or pickup. Examples of their sod can be seen throughout the Edwardsville area, including many lawns in the nearby, elite Glenwood Estates.

Good cultural practices have always been vital to the Brockmeier operation. Now the family is parlaying these qualities with a solid fungicide program for even better sod. □

Horticultural Perlite...

The multi-purpose soil conditioner for turf, containers and propagation.

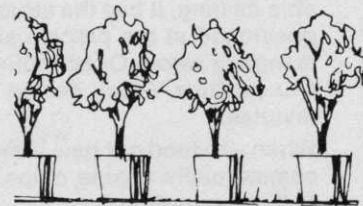
Professional landscapers and grounds maintenance men have long made Horticultural Perlite one of their main 'tricks of the trade'. It's an ideal soil conditioner that



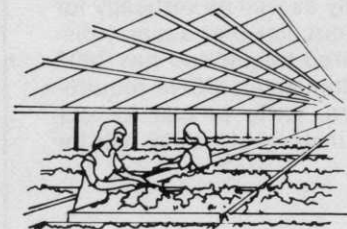
helps promote "a sea of green velvet". You see, by preventing compaction, it keeps the soil loose enabling more oxygen to reach and help nourish the root system. And because Horticultural Perlite also retains three to four times its weight in moisture, it keeps the root network moist long after watering. The result is a beautiful blanket of green growing on a thick healthy, robust root-system that not only keeps grass beautiful, but prevents **golf courses, institutional and campus**

lawns and residential lawns from getting soggy, mushy or soft underfoot.

Nurserymen find Horticultural Perlite practically indispensable for **container grown plants and shrubs** because of its ability to retain moisture, and to keep the mixture around the root environment loose. It is also a great "starting mixture" for transplanted stock as it helps reduce the incidences of transplant shock. And because Horticultural Perlite is sterile and non-toxic, it won't rot, decompose, disintegrate or break down. Nor will it help promote insect life. Being light in weight, Horticultural Perlite makes container moving light work and shipping costs a lighter expense. It's not only ideal for your plants—Horticultural Perlite is ideal for your business.



For **plant propagation**, Horticultural Perlite soil mix is almost as important as sunlight. Because of its water-retention characteristics, this mixture maintains an even distribution of moisture to stimulate fast root development in cuttings and to speed seed germination. Most important, by keeping the starting mixture loose, Horticultural Perlite permits a freer flow of oxygen to help nurture the new growth. This also makes transplanting easy; without root damage; and without undo shock. Horticultural Perlite is inert matter that can last indefinitely in your seed beds. It is sterile, odor-free and can't promote insects or bugs. It is a



great asset for the new beginnings of plant life.

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MOWER (from page 12)

maintenance. This information is invaluable for determining the proper type of unit to use in a given area, the most economical brand of equipment, the good as well as the undesirable equipment operators, and methods for improving maintenance practices. Also, records are almost a necessity as a basis for projecting the life expectancy of a

unit and for determining the most economical time to trade in old equipment.

A good rule of thumb for deciding that the time has come to replace equipment is when the total costs of repairs (parts and labor) have reached approximately 50 percent of the original purchase price. Manufacturers have worked up an expected average lifetime for each piece of equipment they produce,

but it must be remembered that this information can only serve as a guide. Engineering is only one determining factor. Other important considerations are the type of quality of the turf to be cut and the conditions under which the machine is operated. Sandy conditions, thin or dusty turf, nearness to the seashore, a good or bad operator, quality of maintenance, storage, all have an effect; and Zoysia grass, for example, will dull equipment more quickly than bentgrass or Kentucky bluegrass.

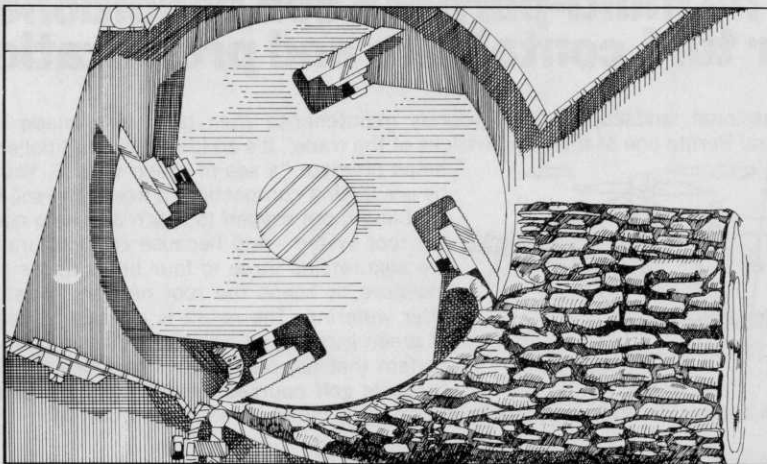
A common reason for shortened life span and high maintenance costs is the use of a machine for the wrong job. When choosing equipment:

1. Consider the terrain to be cut. Is it wooded, rough cutting, hilly or more formal? Decide if a reel or rotary type machine is to be purchased, based on course conditions.
2. Consider the size of the area and buy the largest machine that is practical. If the machine is to be used for trimming purposes and demands on the mower are not too heavy, a small, light duty machine can be used, but higher maintenance costs on this type of equipment are inevitable.
3. Look for simplicity of design. A complicated machine has many moving parts and may have a high maintenance cost. Also, it may be difficult to adjust and a trained expert may have to be used for repair.
4. Check for construction and durability. The machine should be substantially built, well-braced, with good bearings. The sideframes, handles or drawbars should be heavy enough to do the job. The bed bars, reels, blades should be rigidly constructed.

Other considerations when selecting new equipment to improve efficiency would include (1) consultation with the manufacturer or his representative regarding the type of equipment needed. Information on new equipment and improved features, as well as the suitability of their equipment for the job

(continued)

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When you feed our new Wayne brush chipper, you get neat, uniform, commercially usable chips. Without excess vibration, friction and fuel consumption.

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