

New program to focus on people

A new management training program called Professional Effectiveness Program for Garden Center Managers is being jointly sponsored by the American Association of Nurserymen and Garden Centers of America. As in AAN courses of the past, the program will continue to concentrate on things like accounting procedures, cost control, budgeting, advertising, etc., but will now focus on the management of people.

The program will teach an understanding of sound management concepts and the practical application of them to the garden center situation. It is designed for anyone in a garden center who manages people.

Enrollment is limited to 30 participants to permit a more in-depth treatment of the various subjects. More information may be obtained by writing to AAN Professional Effectiveness Program, Suite 230, Southern Building, 15th & H streets, N.W., Washington, D.C. 20005.

Rhodia expands turf care products

Rhodia Inc. Agricultural Division has expanded its Chipco turf care products line. It has received an experimental use permit for Chipco 26019, a new fungicide. The permit allows for the use of Chipco 26019 on dollar spot, brown patch and Helminthosporium.

Rhodia also expects to receive full registration of a preemergent contact herbicide, Ronstar G, by the fall for use on turf and ornamentals. Ronstar G controls crabgrass, annual bluegrass, goosegrass and other weeds in turf applications. In ornamentals, it controls a wide range of broadleaf and grassy weeds.

Asulox herbicide was recently approved by the state of Florida for postemergent control of crabgrass on St. Augustinegrass and Tifway 419 bermudagrass on golf courses and sod farms. Asulox has been used for some time for post-emergent control of grassy weeds in

Florida sugarcane, roadsides, rights-of-ways and other areas.

Roundup receives EPA registration approval

Roundup herbicide has received Environmental Protection Agency registration approval for turfgrass applications, according to Monsanto Company. Roundup may now be applied, by professional applicators as specified on the label, to actively growing weeds before renovation.

Three new perennial weeds — napiergrass, silverleaf nightshade and wirestem muhly — have also been added to the Roundup label.

Research at Purdue University by Dr. W.H. Daniel and Jeff Kollenkark has determined that complete kill of annual and perennial weeds could be expected in approximately 10 days at the recommended rate of one to two pounds active ingredient per acre.

Roundup is inactivated once in the soil and has no effect on seed germination. New weeds may also germinate and infest the site. Because of this it is recommended that renovation be done in early fall. This also allows the turf to reach adequate mowing height before snowfall.

It is further recommended that water with soil or iron in it be avoided when using Roundup as either can inactivate the glyphosphate.

GCSAA expands and forms new departments

The Golf Course Superintendents Association of America (GCSAA) has put into operation a new department and expanded an existing department. The new Department of Chapter and Industrial Relations will promote the growth of the GCSAA conference and show. It will also handle chapter relations and recruit new members. James R. Brooks, who has been director of membership services since 1974, is the director of the new department.

The Membership Services Department has been expanded to become the Department of

Membership and Administrative Services. Its director is Janie Storm, formerly administrative assistant to the executive director since 1975. Storm's department will provide essential administrative functions for the headquarters office and perform all service for members, including Employment Referral Service, audio-visual services, membership applications, reclassifications and terminations, data processing, circulation for the association magazine and registration for both the show and all educational sessions.

Ryan production moves to Lincoln

Production of Outboard Marine Corporation's Ryan institutional turf maintenance line is being moved from St. Paul, Minn. to Lincoln, Nebr. The gasoline-powered Ryan line, ranging from sod cutters to lawn aerators, will be manufactured at the corporation's 500,000 sq. ft. Cushman plant.

"The consolidation of our Ryan and Cushman manufacturing operations will enable us to hold the line on production costs, while enabling us to remain price competitive in the turf and industrial marketplaces," commented Herbert A. Jespersen, division manager and corporate vice president.

Toro sells two distributorships

The Toro Company has sold its branch distribution operations in the Cleveland and Pittsburgh metropolitan areas, according to Toro president David T. McLaughlin.

The name of the Cleveland organization will be changed to Schaefer Turf & Irrigation Co. and will continue to be a full-line distributor, handling all Toro consumer, turf and irrigation products.

The Pittsburgh distributorship will be known as Allegheny Toro Distributing, Inc. For Toro, it will handle only consumer products.

The two sales leaves Toro with three company-owned distribution centers serving Los Angeles, San Francisco and greater New York.

People on the Move

Richard C. Pedersen is vice president, technical affairs for Jacobsen Manufacturing Co. He was formerly director of engineering for Jacobsen's Turf Products division. Pedersen will be responsible for managing product quality, safety, legal and environmental requirements, as well as engineering policies, procedures and standards. He will also be responsible for product liability, patent activities and new product technology. Pedersen is a Registered Professional Engineer.

Al Palladino has been appointed field sales manager for Melnor Industries. He will be responsible for the sale of Melnor products throughout the U.S. and will direct the activities of Melnor's regional sales managers and representatives.

Erling D. Schmidt has been named manager of engineering planning and construction with ICI United States central engineering department. Since joining the company in 1975 as senior project manager, Schmidt has been responsible for building and opening the company's \$70 million paraquat herbicide plant at Bayport, Tex., scheduled to open in late 1977.

James Walsh, MacFarland Co., Harrisburg, Pa., has been elected president of the Horticultural Research Institute. New vice president is **Robert Siebenthaler**, The Siebenthaler Co., Dayton, Ohio. **John Flemer**, Princeton Nurseries, Princeton, N.J., is the new treasurer, and **Robert Voorheis**, Blue Ridge Nurseries, Kansas City, Mo. will serve on HRI's Executive Committee.

Ed Shoemaker has been named director of sales and marketing for the turf division of Rain Bird. He has been with the company for 19 years, joining as an irrigation engineer in 1958. Shoemaker will be responsible for all market planning, product development and sales for the turf irrigation market in the U.S. Shoemaker has served on the Board of Directors of the Irrigation Association and is currently a member of the Industrial Advisory Council of the Golf Course Superintendents Association.

Monsanto Agricultural Products Co. has named **Walter P. Hobgood** as product manager for Roundup herbicide, non-crop. Hob-



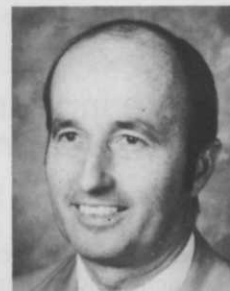
Budecki



Palladino



Pedersen



Shoemaker



Tharrington

good joined Monsanto in 1973, and has most recently held the position of supervisor, market research, in the crop chemicals division.

Jack Welch is product manager of fertilizer and grass seed at Lakeshore Equipment & Supply Co. Welch formerly served as regional manager in the ProTurf division of O.M. Scotts and most recently as manager of the professional turf products department for Northrup, King & Co.

Williams H. Tharrington has been appointed product manager, agricultural engineering, by Stauffer Chemical Co. Tharrington is responsible for basic and applied systems engineering relating to the application of agricultural pesticides. He is also involved in various planning aspects aimed at improving new and existing products and coordinating advertising and sales.

Edward F. Mulcahey has joined Wilkie Turf Equipment Co. as marketing manager, turf and irrigation products. **Charles Kemp** has been named manager, irrigation department and **Kurt Kraly** has been promoted to manager, golf course and irrigation contractor sales.

Robert K. Bernard has been appointed as sales representative for agricultural chemicals for Rohm and Haas Company's central district. He will be responsible for western Minnesota and the Red River Valley of North and South Dakota. Prior to joining Rohm and Haas, Bernard was manager of the soil service center at the Farmers' Union Central Exchange, St. Paul, Minn.

Robert M. Budecki has been named manager, walk-behind products for the Simplicity Manufacturing Co. He will be responsible for planning and implementing changes to the company's lines of walk-behind mowers, tillers and snow throwers. Budecki joined the company in 1972 and has most recently served as national accounts manager.

Marvin M. Schreiber, research scientist with the USDA's Agricultural Research Service at Purdue University, has been named president-elect of the International Weed Science Society (IWSS).



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EQUIPMENT: How to maintain it and when to replace it

by Harold LeSieur

Harold LeSieur is the principal of his own management consulting firm in Santa Maria, Calif. He holds an M.S. degree in engineering from the University of Southern California and an M.B.A. degree from Stanford University.

Many turf professionals "depend upon their equipment, but don't treat it like they depend upon it" is the shrewd observation of an experienced equipment company service manager. Yet, imagine a total mower failure during a major golf tournament, or even a shabby putting green during a heavy weekend of play—all for lack of a mower part. Effective preventive maintenance is the answer, of course, but when this is no longer economically justified, equipment should be replaced without delay. Nice in theory, but this does not happen very often, even for affluent golf clubs or well-budgeted cities.

What is the answer? Without systematic programs of maintenance and replacement, your equipment is "Soon worth only what it weighs", says Joe C. Judd, Los Angeles City Parks Chief Maintenance Supervisor. But if you "learn the truth" about your equipment, he adds, and install meaningful





Superintendent Don Lokey of Valley Club in Montecito, Calif., illustrates mechanism of Toro sand trap rake, awaiting repair in his shop.

Superintendent Lokey displays spray tanks adapted for use on Cushman scooter and mounted on jacks for easy loading.



replacement and maintenance programs, you may be in for some pleasant surprises!

Preventive maintenance pays off

Imagine a simple adjustment to reel bearings on a Toro Greensmaster III, requiring 5 to 10 minutes per cutter, becoming an \$800 plus job because all three cutting units were damaged beyond repair. Between an operator failing to disclose a "floating reel", and a mechanic who did not bother to check, this equipment continued to mow 5 days per week until it self-destructed. And not at some under-budgeted, small course but at a "prominent, exclusive" club in Southern California. On the other hand, consider a California college operating a Toro Superpro which broke down every year for 5 years, then went 2½ years without missing a mowing schedule or needing a major repair. The difference? A matter of preventive maintenance in the second case, according

to Service Manager John Johnston of Toro Pacific Distributing Co.

Nor is this problem limited to golf courses. Foreman Leo Nichols of Ventura County in California tells of a large Yazoo riding rotary mower brought into his shop for replacement belts. An alert mechanic found also two bad bearings, adjusted the steering mechanism and replaced a defective battery cable and spark plug. This mechanic is instructed to go over such equipment "each time for all possible defects", and so he did. "We don't want any surprises for our operators," says Nichols. "If the equipment in our shop is not ready to use when it leaves, my people will hear about it," he adds.

"A half-day job costing \$50 can easily lead to a week's downtime with a \$300 pricetag", explains Toro's Johnston, "simply because communications are bad and preventive maintenance is neglected". Operators tend to let equipment get dirty, he continues, "and 18 pounds of grass hung-up may be hiding 18 grease fittings". This is

where damage will occur, Johnston adds. In his estimation, a piece of equipment "will operate about as it looks". Thus, 8- or 10-year old equipment which is clean and sharp will probably operate better than 3 year-old machines which have been neglected. With this philosophy in mind, Johnston claims Toro "goes overboard" on its warranty program—even after 2 years on a one-year warranty—providing the customer has taken "exceptional care" of the equipment.

What constitutes exceptional care is probably included in Johnston's recommendation to put away equipment each night in a "semi-storage state". This he defines to include washing, drip-drying, flushing and lubricating bearings, "eyeballing" for loose fasteners and repairing as needed. He especially advises operators to listen for bad bearings or other suspicious sounds, and report them to a mechanic. If equipment is stored with moist and contaminated bearings, as during the common 3- or 4-day weekends, corrosion pitting will commence. It

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is small wonder, then, that working this equipment a full day without lubrication can lead to early failure.

By comparison, there is little difference between the recommended Toro Pacific preventive maintenance procedure and that of Lakeside Country Club in North Hollywood. Small additions include superintendent Eichner's recommendations to replace expendable parts, (chains, sprockets, belts) before failure; a minor tune-up of engines; plus sharpening and adjusting reels. To this he adds checking mower bearings for end play — an adjustment requiring only a "few seconds" that can easily save early bearing replacement.

There is a right way and a wrong way to change oil, and a better way to insure correct greasing! Oil should be changed only when hot, advises Toro's Johnston, since contaminants picked up by oil will not remain suspended when oil cools. Again, he cautions to wipe off the oil filter before opening or closing, to avoid debris collecting in the oil. Oil changing on air-cooled engines is doubly important, Johnston cautions, since these engines run hotter and are not equipped with oil filters. As for greasing, reverse the usual order of greasing, attending first to those fittings commonly neglected — the hard-to-get-to ones. To accomplish this, use a color coding system, with "code" recorded on underside of engine hood. For example, all fittings due for daily greasing can be designated by a yellow marking; all scheduled for weekly attention by a green coloration.

Some equipment or components can best be described as "self-destructive," so high is their maintenance. Examples are gears and chains exposed to water and dirt, requiring constant replacement. To this list, Larry Bicking of New-Castle County, Del., adds hand-operated tools such as chain saws, rotary push-type mowers and the Weed Eater. Eichner of Lakeside Country Club nominates as the highest maintenance item of all, per hour of operation, the aerifier. On

this he claims "universal agreement," and describes his own maintenance procedure: Once per year, open cam case and replace followers (if indicated); next year, repair externals, including rod bearings and rod slide bushings. "Our machine destroys itself as it operates," he says, not unlike an automobile engine operated upside down and with no crankcase! However, results are so essential to maintaining healthy turf under traffic, "we put up with it."

People relations key to preventive maintenance

Few would disagree with Bob O'Link Golf Course superintendent Robert W. Williams of Lake Forest, Ill., that preventive maintenance is the "cheapest, best way to go." This requires, he adds, "daily attention to machines used daily." Well and good, but there are really two "answers" to equipment longevity, according to Al Noble of B. Hayman Co. in Los Angeles. "First in importance is a motivated operator, followed by good preventive maintenance." And how to get the "man in the field" to take care of his equipment is often over half the problem.

"If we could consistently get the man in the field to take care of his equipment, this would go a long way," according to maintenance supervisor William Mc Kennrick of Los Angeles County. In this statement, he includes regular lubrication and oil changes, together with attention to "picking up bottles" before they can break blades and ruin mowers. How can this be accomplished?

Inspiring a "That's my machine" pride in each operator by "locking" each employee to a specific piece of equipment is the successful method used by the Valley Club's Don Lokey in exclusive Montecito, Calif. Even more specific is the method used by Ventura County's George Lawhead and Leo Nichols, wherein each employee is assigned to a specific item of equipment, and given two hours each Friday for the "get ready for Monday" ritual. This consists of an oil change, lubrication, filter cleaning and a hunt for loose nuts and bolts, as well

as more serious attention (as needed) by a professional mechanic.

On the same theme, with a clever variation, is the scheme used by superintendent Richard Eichner of the Lakeside Country Club. All operators are recalled from the course one hour early, every other week, on — yes, on pay days: And who forgets a pay day? While washing and oil additions are daily responsibilities of operators, this bi-weekly routine insures a regular oil change and systemic check on mechanical problems, advises Eichner.

Getting the most from your men, by establishing good communications and confidence, is the approach favored by Lokey of the Valley Club. "It takes time to build this confidence," says Lokey, "but there are few who will not respond." Working on a daily basis with his foreman on preventive maintenance, Lokey admits that periodic "jogging" of his men is necessary. However, rather than hurt a man's pride, he finds that a compliment to one soon leads others to follow suit.

It helps communications for a worker to know that he is not going to be fired if he damages equipment. As an example, Lokey cites one of his men who "froze" and drove a tractor over a 15-foot embankment from a wet, steep hill. When free from this fear, workers will be more willing to report equipment out of order, rather than just park the faulty machine and "disappear." As expressed by Toro Pacific's John Johnston, the "I didn't do it" psychology can only be overcome by constant attention to two-way communications between the superintendent, mechanic and operators.

Of course, it's not all that easy when available labor is unfitted or unskilled. A shortage of qualified mechanics is one problem. Another is the hiring sometimes, under many civil service systems, of unqualified help. Thus, passing a written test may still not insure mechanical aptitude. "When you get a good man, hang onto him" is the sensible advice of Los Angeles County's Bill McKennrick. Again, at Newcastle County, Del., a unionized shop sometimes forces superintendent



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Superintendent Richard Eicher instructs operator of irrigation service vehicle at Lakeside Country Club in North Hollywood, Calif. A Cushman flat bed cart has been equipped with service box, sprinkler rack, pipe vise and air tank.



Howard Turf-Quaker aerifies turf at Lakeside Country Club. Equipment consists of tractor-towed rototiller with slicing reel.

Larry Bicking to use inexperienced people acquired by promotion or transfer. Thus, a back hoe operator or sewer tile man from Public Works may not be well suited to operating a large mower on Newcastle's stadiums and golf courses. Bicking estimates, for example, that problems with 40 percent of the mowing equipment brought into his shops could have been averted by better equipment knowledge and preventive maintenance.

Another problem is salaries too low to attract competent people. Then, misuse of equipment becomes common, according to superintendent Ed Dembnicki from the Country Club of North Carolina in Vass, N.C. "When salaries are so low, it is hard to find men who take pride in their work and can be motivated." Dembnicki is at least blessed with a competent mechanic.

One happy answer to some of these problems is the hiring of female operators. Women, it seems, have proven they can drive well and will follow instructions and precautions. As explained by Al Noble of B. Hayman Co. in Los Angeles, females don't have to prove male "macho," and will take fewer chances while driving and care for their machines as instructed (and not blow seals while lubricating!).

Taking a cue from superintendents who have had success with women in turf work, "Rich" Eichner of Lakeside Country Club plans to add separate women's facilities in his new 50 percent shop expansion.

In the last analysis, "heads up" supervision is still the most important answer to results through people (and excellent equipment maintenance as a result). A shortage of Grade A superintendents is one complaint heard from the ranks of equipment suppliers, but attentiveness to the job is even more important. One example will illustrate the point. At a prominent course in Southern California, five 7-gang mowers were purchased between 1965 and 1975, because reels and side plates were consistently broken. Reason: Operators were fording rock-strewn creek beds (an 18-hole "finger" course) without declutching reels or lifting arms. This example of "flat abuse" was licked by purchase of a hydraulic mower, with easy-to-lift arms and reels. Needless to say, supervision had to be "jacked-up" as well.

At a time when skilled labor costs are escalating more rapidly than equipment prices, a premium is placed on sharp supervision. An amusing story is told of a prominent course in San Luis Obispo, Calif.,

whose "no nonsense" superintendent demanded that his men take care of their scooters. When overtaken by this alert professional, an operator who was "drag racing" his scooter was summarily sentenced to walking the course for 30 days! And after 13 years, the same transportation equipment is in daily use, "and good operators have resulted."

By taking "all hands" into your confidence, superior results can be your reward. As explained by golf course supervisor Neil Beeson from the City of Anaheim, Calif. (home of famed Disneyland), "Operators can make or break a piece of equipment." Before any such equipment is purchased at Anaheim, all concerned must be consulted, and this includes actual operation by the rank-and-file employee. If the operator's recommendations are not followed, supervision feels obligated to explain exactly why.

Precisely the same procedure is followed at famed Forest Lawn Memorial Parks in Southern California. Manager of grounds maintenance Robert Davidson explains that, before purchase, equipment must be driven by actual operators on the steep slopes of Forest Lawn's main park. This provides not only better input to the final decision, but

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helps to win the cooperation and interest of operators in their equipment. This is valued, considering the hazards and abuse mowers encounter in the unique and difficult environment of steep cemetery hill-sides.

"Don't be afraid to ask dumb questions. They're easier to handle than dumb mistakes." This bit of advice hangs as a sign over the shop bench in the County of Ventura's landscape maintenance headquarters. This attitude, spelled out in actions as well as words, should go a long way toward winning worker cooperation in effective equipment maintenance.

"So you think you have problems?"

If you think your turf equipment is subject to abuse, just consider the difficult situation with cemeteries. Especially is this true with Forest Lawn and Mt. Sinai Memorial Parks, lying astride mountainous Griffith Park in North Hollywood, Calif. "Endlessly rattling over bronze or stone grave tablets does our equipment no good," says Grounds Maintenance Manager Robert Davidson of Forest Lawn. Not only this, but machines at both cemeteries must operate continuously on grades of 30 percent or better, often on wet grass, and with constant stop and go operation during visitation hours. To compound the problem, stones from freshly dug graves and loose wire, sticks and glass vases from flower arrangements are often lost until discovered by a mower operator! Or until the teeth of a turf aerator are broken off.

Superintendent Al Dennis of Mt. Sinai estimates such treatment shortens the life of his equipment by at least 20 percent, and causes "nothing but high repair bills."

To remedy this problem, Forest Lawn professionals literally rebuild a standard 76-inch mower, and "give back" some \$1,300 worth of gear to the vendor on a \$3,000 machine. This includes the sit-down

sulky, since safety requires the mower be remodeled into a stand-up machine with trailer in rear. Then, a customized steering gear is added to suit each operator's height, dual rubber wheels may be added, a hand emergency brake and kill switch installed, and the reels and frame "beefed up."

If Forest Lawn officials could buy this type of equipment, or at least more rugged mowers, they might gladly pay an extra \$1,000 for a 5-gang mower costing \$4,600. Most of these, observes Davidson, are manufactured for mowing bent-and bluegrass on golf courses or median strip grasses to a depth of 2 inches to 6 inches, not Kikuyu grass to 3/4 inch on such steep slopes. "And they can't understand why their machines won't work," adds Davidson.

To be sure, memorial parks do not have a corner on difficult equipment problems. Consider operating mowers on a slope of the Rocky Mountains, with a total fall of 350 feet in little more than one mile. "We have tipped a few mowers over," reports Broadmoor Golf Course Director Charles Clark, "and our National mowers take a real beating in only 2 years."

A more usual situation is the maintenance shop located remotely from any golf course. Lack of a blacktop road to such a shop, even if only a quarter mile away, increases wear by an estimated 20 percent. Another common problem for municipalities, reported by Larry Bicking of Newcastle County, Del., is the "pooling" of turf equipment. In this case, where machines are not assigned to individual operators, equipment may be treated with less respect and be much more subject to abuse.

Speaking of unusual examples of heavy wear and maintenance, the cleaning of seaweed from beach sand by the Huron-Clinton Metropolitan Park Authority of Detroit has to be unique. Director David Laidlaw describes a converted potato and bean digging machine which picks up a 6-foot swath of seaweed and sand, conveying the mixture by belt and separating by rough screening. This machine is towed by a tractor and is subject to heavy wear from the sand and high

maintenance requirements. The same is true for a separate tractor-towed trash pickup trailer.

"East is East, West is West"

Interesting regional differences exist in maintenance practices between courses, based on three months of heavy winter weather in the East and up to 363 days per year of playing time on the West Coast. "Our course is closed only on Yom Kippur each year," explains Superintendent David Mastroleo of the Hillcrest Country Club in Southern California. "We mow our fairways like crazy all spring and summer," he adds. Consequently, equipment on California courses is used continuously and must be repaired "on the run," in his words. Having worked at Arrowhead Country Club and Addison Golf Club, both in Illinois, Mastroleo is qualified to note the differences between eastern and western maintenance practices.

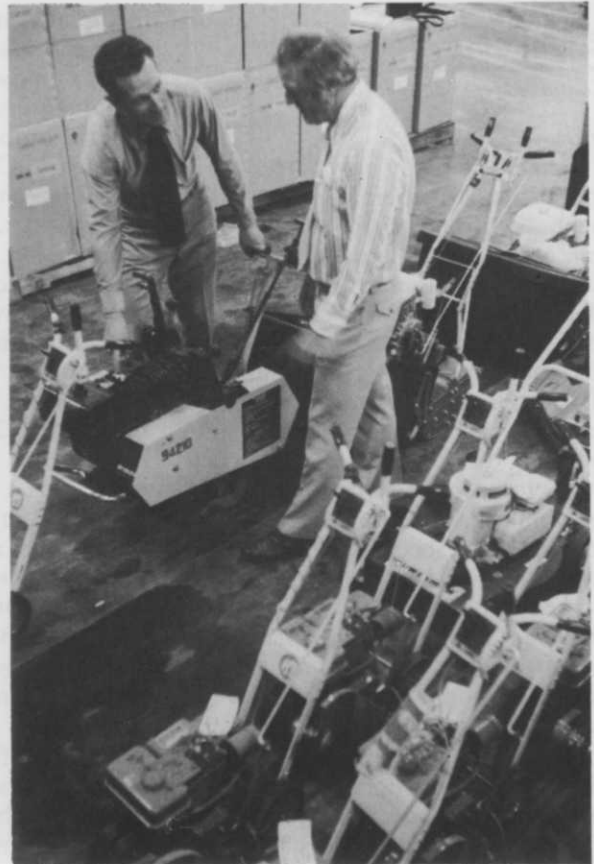
Each winter, an eastern or mid-western golf course will typically go through its equipment thoroughly, repairing and repainting. Engines will be torn down, if needed, gears will be checked, then bearings and bushings replaced. Even Colorado Spring's Broadmoor Golf Course, considered the "Far West" to many Easterners, undertakes its heaviest rebuilding and repainting jobs when the "frost is on the ground." Again, bermudagrass goes dormant from November to mid-March in California, often accompanied by rain (except under present drought conditions). Consequently, Forest Lawn Memorial Parks uses this period to rebuild its mowers, since bermuda is its principal turf grass.

Even further west, Lokey of Montecito, California's Valley Club prefers the January-February "frost" period to pull down motors, regrind reels and generally to anticipate bearing and other jobs which could "hold up the show" in summer weather.

In one sense, the luxury of warm weather may tempt some to neglect their equipment. Bob O'Link's Robert Williams notes eastern clubs all keep their equipment inside. Not so in the South, especially Florida, and in California. Here he observes open

Chief Maintenance Supervisor Joe C. Judd illustrates operation of sod cutter to Central Storeroom Manager Howard. A backlog of new machines, purchased under engineered equipment replacement program, is kept at this Los Angeles City facility.

Superintendent Richard Eichner inspects greens mowers lined up for repair in machine shop of Lakeside Country Club.



equipment sheds, and equipment sometimes left to rust. Does this practice unduly hasten the need for replacement, he asks?

Replace or repair?— THE BIG QUESTION

To replace or to repair? That is the question. And there is no one answer, even for the same class of equipment, since each user has a different problem.

To illustrate the divergence possible, we need but consider two large governmental units in the same area, namely the City and County of Los Angeles.

Los Angeles City has gained some reputation for its turf maintenance equipment replenishment program. This emphasizes prompt replacement of on-line or high frequency use equipment, according to engineered standards of life expectancy. Under this program, triplex and 30-inch mowing units are removed from front-line service promptly after 4 years, to a standby or low-frequency use. Chain saws and edgers are retired after only 2

years. The results, according to Chief Maintenance Supervisor Joe C. Judd, have been a better job, newer equipment to work with and less cost in the long run. There is now less temptation for supervisors to "squirrel away" extra mowers. Further, careful accounting of equipment has actually permitted Judd to set up a "spare and loan equipment program" with the same equipment inventory. Needless to say, equipment distributors such as Toro Pacific are very fond of the L.A. City program!

At the other extreme is Los Angeles County, which Toro Pacific's Johnston rates as having the "best parts department in the country and a shop second to none." Here the emphasis is on "keeping equipment until it begins to cost money," and probably well beyond.

Nor is Los Angeles County alone in this approach. In the very same area, the City of Los Angeles School District maintains two separate repair shops, to service mowers, tractors, sprayers and other equipment used in its 700 square-mile maintenance territory. "We

have to live with our equipment longer than we like," says James H. Lane, gardening technical supervisor. Operating under a predetermined dollar budget, equipment used 10 to 15 years is not at all uncommon. "We may buy a piece of equipment two times over," he explains, "really beyond the point of economic feasibility to repair." A good preventive maintenance program helps to compensate for this policy, and this school district hires four travelling equipment repairmen to make minor repairs. Larger jobs are picked up by truck and transported to one of two central machine shops.

Even prestigious golf courses have had the problem of antiquated equipment to overcome. Both superintendent Terry Bucken of the Riviera Country Club in Pacific Palisades, and Don Lokey with the Valley Club of Montecito, both in California, speak of replacing high maintenance, "museum"-type equipment. In fact, Lokey proudly displays a gear-driven spray rig from the 1920's, no longer in use but recalling memories of a steam cal-

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Equipment

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liope.

There are really only three basic approaches to equipment replacement, according to Robert Davidson, manager of grounds maintenance for the largest of Forest Lawn Memorial Park cemeteries in Southern California. Thus, one can (1) replace equipment after a set number of years (say, 5 years average), or (2) replace when maintenance becomes too high, or (3) "work over old machines to keep them running." This, he admits, is the Forest Lawn approach, partly because of the difficulty in "getting the weak points worked out." With steep hillsides to contend with, plus stop and start mowing over rugged terrain Forest Lawn finds it necessary to rebuild mowers to its own specifications.

Still another municipality which must use equipment "typically to the breakdown point" is the City of Norfolk, Va. Like California, Norfolk has a temperate, long growing season, so that tractors and mowers are in constant use. Responsibility for maintaining 4,000 acres of turf, Parks & Recreation Director James Colley believes down-time would be reduced, and performance increased, if most equipment were replaced at least one year earlier. At Norfolk, Colley explains, the Central City garage must "sign off" on all existing equipment, certifying it as "beyond repair."

Assuming a reasonable equipment replacement program stands a chance at your institution, what kind of service life does experience show to be possible? This one needs to know in setting up a budget and depreciation schedule, a procedure lauded by such oldtimers in the golf superintendent business as Art Twombly of the Bel Air Country Club near Beverly Hills, Calif. and GCSAA past president Bob Williams of the Bob O'Link Golf Club in Lake Forest, Ill. For a walking green mower costing approximately \$1,000, Twombly considers 4 to 5 years of life "about it," if the machine is run daily. Other estimates may vary from this. At the City of Anaheim, Calif., golf course supervisor Neil Beeson (who teaches

equipment maintenance at a nearby college), rates the practical life of greens mowers at only 3 years, although his city programs a 5 year life. Famous Broadmoor Golf Course in Colorado Springs, places a 3 year schedule on their mowers. "After this," says superintendent Tommy D. Anderson, "we may move this equipment down and use as a tee mower."

Walt Disney World in Florida follows the University of Florida's Extension Service recommendations of 3 years life for riding-type greens mowers and triplexes, and 5 years for fairway and rough mowers. Superintendent Larry L. Kamphaus adds that one-cylinder machinery is replaced in less than 3 years, as vibration and metal fatigue soon wear out such equipment.

Many equipment replacement decisions can be made as a matter of "common sense," without the benefit of formulas. In fact, formulas are seldom used in actual practice, although espoused by some equipment manufacturers. On small equipment, selling new for under \$200, such facilities as Mt. Sinai Memorial Park in North Hollywood or Bob O'Link Golf Course in Illinois simply discard such equipment after two years' use. Thus, there is no sense in buying a new \$50 or \$60 motor for a rotary trim mower costing only \$60 to \$85 in the first place. On the other hand, a \$700 motor replacement in a \$3,000 to \$3,500 Cushman Truckster is well worth considering, feels Bob O'Links' Bob Williams.

More mundane equipment, such as diesel tractors, may last from 5 to 10 years, and spreaders or renovators even "indefinitely." Twombly of the Bel Air Country Club expects no maintenance at all for the first 10 years from a Massey Ferguson diesel tractor with bucket loader and excavator. For most equipment, however, he complains, "Manufacturers are not building machines like they used to," thinking of his 1947 Buick which lasted 120,000 miles "without the head off."

Forest Lawn's Supervisor of Mechanics, John McKinney, agrees with this observation, adding that today's turf equipment engines have a "built-in" obsolescence. After 400

operating hours, he says, they begin to have problems. McKinney admits, however, that running even an automobile engine 100 percent of the time on a slant would soon wreck it.

Neil Beeson from the City of Anaheim, California is somewhat more generous in his estimate of engine life than the Forest Lawn people, probably based on his experience with less severe environments. Beeson offers a useful formula for operating costs:

Year 1) Low maintenance, excepting for accident or other major problem.

Year 2) 2 times cost of Year 1

Year 3) 3 times cost of Year 1 (or 1 1/2 times Year 2).

After the third year, Beeson explains, engines will probably need all new bearings, bushings and rollers, and total engine life will approximate 1,500 hours, for the environment of Anaheim's golf courses.

Of course, there is always the grey area between complete replacement and simple repair, where one can profitably rebuild equipment. Some professionals prefer this, or are forced into rebuilding by a die-hard greens committee. Superintendent "Rich" Eichner of the Lakeside Country Club considers in-house engine rebuilding a "loser". He has had two tractor engines rebuilt on the outside, and bought fitted blocks for in-house replacement of trap edgers and trimmers. But Eichner is happy for a switch to diesel engines. Now he needs only new injectors and injection pump adjustments, although he acknowledges fuel injectors require outside specialists and he prefers outside help for a major tune-up yearly.

In contrast, David Mastroleo of the Hillcrest Country Club in Southern California prefers rebuilding his engines. For a greens-mower costing over \$900, for example, he can short-block his engine and replace reels, and continue to operate after 12 years. As usual, there is more than one way to skin a cat!

Budget and inventory rated "musts"

Not every club, or even municipi-