Trophy 300. Electric, $1,290; length, 92¼ inches; width, 43 inches; weight, 564 pounds with batteries; three wheels; steering wheel; steel body and frame.

WARRANTY, all models: one year on parts and service. OPTIONAL FEATURES, all models: canopy. STANDARD FEATURES, all models: a 20 per cent power boost from a new 12hp cylinder air-cooled engine on all gasoline models. On electric models, there are automatic seat brakes, a brake warning buzzer (GC models only), impact resistant bumpers, rust proof scorecard holder and automatic line compensating charger.

Circle No. 134 on reader service card

E-Z-GO CAR, Div. of Textron, Inc., Box 388, Augusta, Ga. 30903

X-440. Electric, $1,543; length, 90 inches; width, 48 inches; weight 912 pounds with batteries; three wheels; steering wheel; steel body and frame.

X-444. Electric, $1,628; length, 96 inches; width, 48 inches; weight, 1,017 pounds with batteries; four wheels; steering wheel; steel body and frame.

GX-440. Gas, $1,543; length, 90 inches; width, 48 inches; weight, 730 pounds with fuel; three wheels; steering wheel; steel body and frame.

GX-444. Gas, $1,628; length, 96 inches; width, 48 inches; weight, 805 pounds with fuel; four wheels; steering wheel; steel body and frame.

WARRANTY, all models: one year replacement or repair of any defective part. OPTIONAL FEATURES, all models: canopy, windshield, four bag attachment, head and taillights, horn, chrome hub caps and automatic seat brake.

Circle No. 135 on reader service card

LAKE SPORTS, INC., P. O. Box 87, Fairmont, Minn. 56031

Brute-Car. Gas, $895; length, 88 inches; width, 46 inches; weight, 340 pounds with fuel; three wheels; tiller;

fiberglass body with steel frame. WARRANTY: 90 days on all factory defects. OPTIONAL FEATURES: canopy, head and taillights. STANDARD FEATURES: metal flake finish, beverage ice cooler.

Circle No. 136 on reader service card

MIDWEST INTERNATIONAL, Midwest Div. of Smith Jones, Inc., Kellogg, Iowa 50135

MW72 Golfkar. Gas, $1,125; length, 86 inches; width, 47 inches; weight, 497 pounds without fuel; three wheels; tiller; Cycolac body.

MW73 Golfkar. Gas, $1,225; length, 86 inches; width, 47 inches; weight, 557 pounds without fuel; three wheels; steering wheel; Cycolac body. WARRANTY, both models: one year on factory defects. OPTIONAL FEATURES, both models: canopy.

MW74 Golfkar. Gas; four wheels. To be introduced in January, 1974. Further details about the new model were unavailable at press time.

Circle No. 245 on reader service card

MODEL TEE CART CORP., Manchester Ave. and Maple Pl., Key Port, N.J. 07735

Gemini III. Gas, $1,355; length, 96 inches; width, 47½ inches; weight, 850 pounds with fuel; four wheels;

steering wheel; fiberglass body with steel frame. WARRANTY: one year on workmanship. OPTIONAL FEATURES: canopy, windshield and heater. STANDARD FEATURES: the use of propane fuel only.

Circle No. 246 on reader service card

LEW MONTGOMERY, INC., 145 N.W. 20th St., Boca Raton, Fla. 33432

Melex. Electric, $1,525; length, 96 inches; width, 48 inches; weight, 1,000 pounds with batteries; three wheels; steering wheel; steel body and frame.

Melex. Electric, $1,600; length, 98 inches; width, 48 inches; weight, 1,050 pounds with batteries; four wheels; steering wheel; steel body and frame. WARRANTY, both models: one year on all parts. OPTIONAL FEATURES, both models: radio, head and taillights, horn, cigarette lighter, storage box. STANDARD FEATURES: canopy, seat brake.

Circle No. 247 on reader service card

OTIS ELEVATOR COMPANY, Special Vehicle Div., 1801 East Charter Way, Stockton, Calif. 95204

Otis Golf Car. Electric, $1,395; length, 91 inches; width, 47 inches; weight, 1,040 pounds with batteries; four wheels; steering wheel; Cycolac body with steel frame. WARRANTY: 90 days on all factory defects of mate-

continued

rial and workmanship. OPTIONAL FEATURES: canopy, windshield, tow bar, external charger, head and taillights, cigarette lighter, stereo, seat belts and rear vision mirrors. STANDARD FEATURES: full width storage pocket on the back of each seat.

Circle No. 248 on reader service card

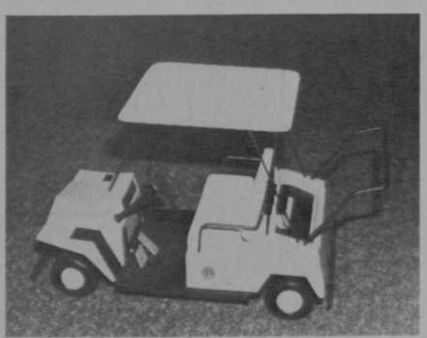
PARGO, INC., Box 5544, 4300 Raleigh St., Charlotte, N.C. 28205

803. Electric, $1,445; length, 96 inches; width, 46 inches; weight, 930 pounds with batteries; three wheels; steering wheel; fiberglass body with steel frame.

804. Electric, $1,545; length, 96 inches; width, 46 inches; weight, 950 pounds with batteries; four wheels; steering wheel; fiberglass body with steel frame. WARRANTY, both models: one year on parts, plus a one-year guarantee on the battery and a two-year guarantee on the electrical system. OPTIONAL FEATURES, both models: canopy, windshield, horn, head and taillights, seat brake, cigarette lighter, radio and battery meter. STANDARD FEATURES, both models: disc brakes, adjustable seat backs and sweater basket.

Circle No. 249 on reader service card

PLAYMASTER CORP., 2714-G West Kingsley Rd., Garland, Tex. 75040



Playmaster 501-E. Electric, $1,415; length, 95 inches; width, 46½ inches; weight, 960 pounds with batteries; four wheels; steering wheel; fiberglass body with steel frame. WARRANTY: one year on all parts and workmanship. OPTIONAL FEATURES: canopy, cigarette lighter, radio, battery condition indicator and believe it or not, television. STANDARD FEATURES: built-in ice chest and bag rack to hold three large bags.

Circle No. 250 on reader service card

SOUTHERN GOLF EQUIPMENT, INC., Box 568, Wilmington, N.C. 28401

Capri-100. Electric, $1,465; length, 93 inches; width, 45 inches; weight, 900 pounds with batteries; three wheels; tiller or steering wheel; fiberglass body. WARRANTY: one year against defective parts and workmanship. OPTIONAL FEATURES: top wheel covers. STANDARD FEATURES: safety reverse switch, automatic brake release, wrap-around bumper built into frame, automatic rear body latch and cushioned brake to prevent turf damage.

Circle No. 251 on reader service card

TAYLOR-DUNN, 2114 West Ball Rd., Anaheim, Calif. 92804

Tee Bird GT360. Electric, $1,640; length, 89¾ inches; width, 45¼ inches; weight, 1,065 pounds with batteries; four wheels; steering wheel; steel body and frame.

Tee Bird GT361. Electric, $1,640; length, 89¾ inches; width, 45¼ inches; weight, 1,065 pounds with batteries; four wheels; steering wheel; steel body and frame. WARRANTY, both models: one year on parts and workmanship. OPTIONAL FEATURES, both models: canopy, windshield, hardtop cab, head and taillights, stand-up bag rack, chrome

bumpers, cooling fan and cigarette lighter. STANDARD FEATURES, both models: Uni-Spring suspension system, utilizing heavy-duty leaf spring suspension integral with front and rear axles.

Circle No. 252 on reader service card

WESTINGHOUSE ELECTRIC CORP., Box 712, 26701 Redlands Blvd., Redlands, Calif. 92373

436-E. Electric, $1,595; length, 94 inches; width, 47¼ inches; weight, 1,030 pounds with batteries; four wheels; steering wheel; steel body and frame.

437. Electric, $1,395; length, 91½ inches; width, 47¼ inches; weight, 965 pounds with batteries; three wheels; steering wheel; steel body and frame. WARRANTY, both models: one year on parts and workmanship; two-year guarantee on speed control. OPTIONAL FEATURES, both models: customized cars available. STANDARD FEATURES, both models: canopy, batteries and charger and brakes on each rear wheel. □

Circle No. 259 on reader service card

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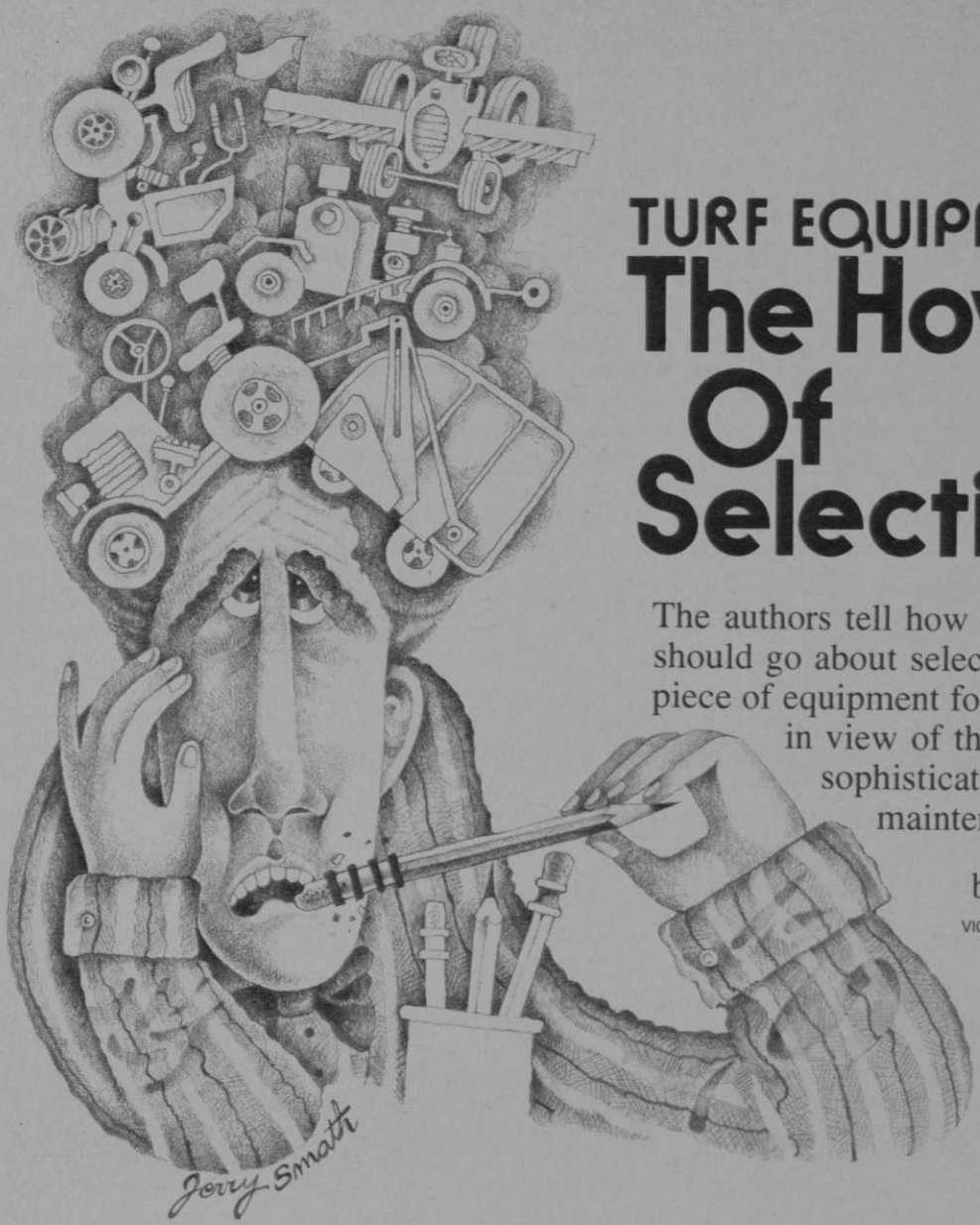
ANNUAL BUYING ISSUE 1974

TURF EQUIPMENT: The How-To's Of Selection



The authors tell how the superintendent should go about selecting the best piece of equipment for the prescribed job, in view of the ever-increasing sophistication and range of maintenance machinery

by JAMES R. WATSON
VICE PRESIDENT-DISTRIBUTOR RELATIONS
and
JAMES A. FISCHER
DIRECTOR OF MARKETING
TURF PRODUCTS DIV.,
THE TORO COMPANY,
MINNEAPOLIS, MINNESOTA

The superintendent is in a bind. He is expected by his members to maintain an almost perfectly groomed golf course despite increasing numbers of avid golfers and dwindling sources of funds, labor and energy.

Out of necessity, he has turned to technology as an alternative that promises to cut his Gordian knot. New developments in grounds maintenance equipment in particular offer the superintendent his greatest expectation.

A case in point is the new power sand trap raking equipment. Raking sand traps traditionally has been done by hand, which is time-consuming and tiresome. Also, the quality of the raking may be inconsistent. A man sweating under a hot afternoon sun will not work nearly as well as he will at 6:30 a.m. And he will rake a wet trap differently than a dry one.

A powered raking machine does rake uniformly, regardless of sun, heat, time of day, wet sand or dry. Time and over-all maintenance costs are reduced. The Toro Sandpro, for example, rakes a 68-inch width, cultivating and raking simultaneously. At 1,000 square feet a minute, this machine can rake 18 average size sand traps in an hour. Another plus: Many users have found that the pay-back period for this piece of equipment is between three and six months, making it a sound investment.

Another piece of equipment that can improve the quality of outdoor grounds maintenance while lowering over-all costs is the riding triplex greens mower. This mower does a better job of cutting, does it more quickly and can cut over-all costs, all of which are advantages over the older greens mowers.

The chart on page 56 shows the amount of labor savings possible by using one riding triplex unit on an average 18-hole course as compared to one walk unit.

Two triplex greens mowers will decrease total mowing time even more dramatically, and time is money on a golf course. The faster the greens are mowed, the more players can play on a public or semi-private course and the more free time a private club member has to play on his golf course.

The golf course maintenance equipment produced today often differs considerably from its predecessors of only a few years ago. Improved design concepts, new materials, new manufacturing procedures have combined to produce more durable machines, machines of greater flexibility and easier handling. Although more complex and precise, they are simpler to maintain and service.

continued on page 56

SELECTION *from page 55*

These features make these machines ideally suited to solve the problems of golf course maintenance. The price tag of these units usually is substantial, however. This places a new burden on the superintendent, whose responsibility it is to prepare pertinent data and recommend or decide on the acquisition of new equipment. This responsibility necessitates keeping in close touch with equipment manufacturers and their representatives as well as following certain guidelines that will help the superintendent in his decision-making process. Among the factors the superintendent needs to consider are:

1. The time available for course maintenance;
2. Availability of labor;
3. Special terrain features, unique design and landscape characteristics;
4. The level of maintenance required by the membership;
5. Funds available and their sources;
6. Whether the course is new or established;
7. Availability of parts and service;
8. Plans for expansion or growth, if any, and
9. Total cost.

Time available to do the daily and weekly maintenance jobs is determined by the amount of play, the degree of interference with play (or maintenance) permitted by course officials and climate, such as heavy dew or frost, rainfall and heat stress. Any factor that reduces the time available for maintenance work will influence the kind and the amount of equipment. For example, if play is consistently heavy and club or course rules permit minimal interference with play, then high capacity, durable equipment that is easy to adjust and maintain is essential. If the available time is further squeezed by adverse climate, the superintendent should plan to buy high-capacity equipment along with extra "back up" or reserve units.

Availability of labor. If the golf club is located in an area with a limited labor force and heavy playing periods occur when supplemental labor (students, retired or semi-retired help) is unavailable, then labor saving, high-capacity equipment must be programmed. Otherwise the condition of the course may deteriorate.

Special terrain features, unique design and landscape characteristics must be taken into account when establishing criteria for selection and purchase of equipment. For example, courses divided by highways, courses with a large number of relatively narrow bridges or with small streams or drainage ditches not easily crossed by small-wheeled vehicles; courses with small or very large greens and sand traps; courses with heavily wooded roughs, and courses with no roughs or with intermediate roughs, are all determining factors.

The level of maintenance required or tolerated by the membership is a major consideration in selecting equipment. Yet, too often, it is overlooked both by the superintendent and the club membership. Too often, the equipment and the materials required for the highly-groomed, well-manicured course, expected and desired by the membership, are simply

PAY-BACK PERIOD* ANALYSIS

Cash Out	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Investment (less trade-in) ** equals ($4,000 − $600)	$3,400	$0	$0	$0	$0	$3,400
Cash In						
Labor savings	$800	$800	$800	$800	$800	$4,000
Operating cost savings	$300	$300	$300	$300	$300	$1,500
Maintenance savings	$500	$300	$500	$550	$600	$2,450
Total Cash In	$1,600	$1,400	$1,600	$1,650	$1,700	$7,950
Accumulative Total	$1,600	$3,000	$4,600	$4,600	$5,250	$7,950

*Pay-back period: time required to pay back initial investment. In the above example, the payback period is 2¼ years. In general, a one to three year payback period is acceptable for a business investment.

**New riding greens mower is worth about $4,000; a four-year trade-in would be worth $600.

unrealistic with available funds. And unless this condition is understood by sympathetic, influential club officials, a turnover of superintendents is one likely result. There must be a realistic estimation of the level of maintenance feasible with existing resources.

The funds available for the purchase of equipment, total funds or monthly allotments, and the impact that the use of this equipment will have on the financial structure of the club are substantial factors in the selection and procurement of equipment. When cash reserves are limited, and the club cannot or does not want to finance new equipment, then a leasing program should be considered, especially if the club enjoys a sound, favorable cash flow throughout most of the year.

Savings in labor costs are possible with high capacity equipment by releasing one or more laborers to work on other projects; or in some cases, by making possible a reduction of the labor force.

The age of the course, its stage of development and club plans for renovation, relocation or expansion need also to be considered. Although the equipment needed for a new course is basically the same as that for a comparable, but older, established course, the available funds may be more wisely spent on the acquisition of used, rather than new, equipment. This is particularly true in areas where turf is slow to establish or where dust, grit and similar materials will be present for one or more seasons. The excessive wear produced under such conditions may necessitate premature replacement of new equipment. And considering that all used equipment will not wear out at the same time, funds for their replacement can be spread over one or more seasons. The same planning approach may be used for rebuilding and relocation plans in expansion programs.

Golf course maintenance equipment must be supported with parts and service facilities. To use its operating dollars most effectively, the club must, in cooperation with the manufacturer, the distributor and his representatives, develop service programs that take full advantage of the club's own facilities and capabilities. Some distributors provide regularly scheduled mobile service trucks, which are capable of handling all but major breakdowns. Many distributors establish special service and overhaul programs during off-season periods to accommodate golf courses. The availability of this type of preventive maintenance must be considered in developing programs for equipment purchases.

When the club has decided that buying equipment is necessary, what needs must the new (or used) units meet? They should be high quality, efficient machines that can do the specific job. They should be durable, long-lived and easy to service. And they must meet standards of operator comfort and safety, such as up-front operator position for good visibility; comfortable adjustable seats; simple, automotive-type steering, brakes and controls; adequate shielding; low noise levels and appropriate instruction books and safety decals.

The provident superintendent should also be alert to what the new trends in equipment design are and keep his mind open to what will best serve his maintenance program, perhaps by preparing a comprehensive feature-by-feature comparison of the different machines offered. He should ask his dealer for the specification sheets and review them with the sales representatives, considering especially the significant or prime features of the equipment, type of reels, engine horsepower, kind of tires, and so on. He might also ask his dealer for a live demonstration. This way he can see how the machine actually operates under course conditions. At local or national gatherings, the superintendent might also ask other superintendents who have used the equipment for their views on performance, problems and so on.

Trends of which the superintendent should be aware are toward:

The use of a hydraulic drive system, which avoids dangerous belts and chains that require continuous adjustment. This system provides slip-clutch capability by using integral pressure release valves. And it is a simple system, involving a hydraulic pump, possibly some hydraulic hose and a gear or a piston motor.

The use of water-cooled engines, which provide long life. The four-cylinder engine in the Groundsmaster 72 has a warranty of 1,500 hours and a life expectancy of between 3,500 and 5,000 hours. The expected life of an air-cooled engine is around 1,000 hours. A water-cooled engine is less

continued on page 70

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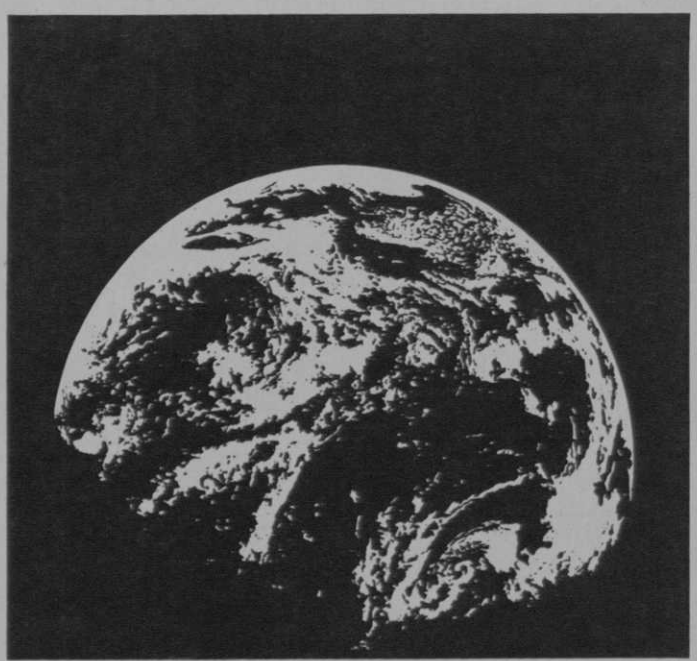

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ANNUAL BUYING ISSUE 1974

MAINTENANCE '74: A Matter Of Buying Strategy

All indicators show higher over-all prices in 1974. This, coupled with possible materials shortages and delivery delays, means superintendents must buy astutely and early

by DR. JAMES B. BEARD

Supply shortages, sluggish deliveries, price increases, new safety requirements and EPA and local pesticide bans will translate into buying problems in three vital areas: turfgrass seeds, equipment and fertilizers and pesticides. Superintendents will do well to place their 1974 orders early. Otherwise the shortages and delays may force cutbacks in their maintenance programs.

This article is an attempt to stay abreast of the way the fluctuating economy affects the prices and availability of those products needed by golf course superintendents. This updating of previously published materials, therefore, will allow the superintendent to realistically adjust his buying plans.

Because this article was written before Phase 4 took effect, the reader should keep in mind that the projected price changes are based on information available prior to the complete development and resulting effects of Phase 4. The information was obtained through contacts with major turfgrass, chemical and equipment suppliers. Some companies, which had not yet established their specific 1974 prices, still indicated they anticipated price changes. The price changes for the three groups of materials are a range representative of a cross-section of companies. Even greater price changes might occur for certain items. Superintendents, establishing budgets for 1974, might want to consider this representative as the minimum upward adjustment. In some situations in order to protect against additional, unexpected price rises, an even higher budget request should be made.

TURFGRASS SEEDS

The greatest increase in prices will occur in turfgrass seeds. There definitely will be a world shortage of this commodity in 1974, which is the result of several factors: 1) A severe drought in the Pacific Northwest has created a drastic reduction in seed yields, ranging as low as 25 per cent of the norm in some areas. 2) Turfgrass seeds have been priced quite low for some time. A major adjustment has been coming, due to increased costs of production. 3) The demand for turfgrass seed has increased substantially in Europe.

The situation is as follows for specific species:

Bentgrass: A definite shortage will exist with only Seaside seed supplies being comparable to 1973. A two-fold increase in the price of Penncross could occur, while the price of Seaside may go up by 25 per cent.

Kentucky bluegrass: A seed shortage of many Kentucky bluegrass cultivars is anticipated. The exceptions are certain elite cultivars that were grown on irrigated land. The so called "common types," such as Delta and Newport, may increase in price as much as four-fold over 1973, with supplies limited. The improved (elite) type cultivars, such as Baron, Fylking, Merion, Nugget, Sodco and Sydsport, will be up in price anywhere from 20 to 50 per cent over 1973. Supplies of the improved cultivars will not be as limited as the common types previously mentioned. Here again exceptions exist for certain elite cultivars where the bulk of the production was located on unirrigated sites. The limited supply and increased price for Kentucky bluegrass seed will probably exist for several years.

Ryegrasses: Italian (annual) ryegrass seed is in short supply with a price rise of as much as three-fold anticipated for 1974. Similarly, the "common type" perennial ryegrasses, such as Linn, may have a three-fold increase in price for 1974 with seed in short supply. The crop yield for improved perennial ryegrasses, such as Manhattan, NK-200 and Pennfine, looks good, because production was located on irrigated land. As a result, only slightly higher prices are anticipated.

Fine leafed fescues: The world demand for chewings and red fescue is increasing rapidly. Fortunately, there was a good crop of red fescue in Canada in 1973. A good supply of seed can be anticipated with a price increase of up to 50 per cent over 1973.

EQUIPMENT

The price rise allowed under Phase 4 guidelines will vary depending on the size of the manufacturer. Recognizing this situation, the following general ranges are anticipated. In comparing prices of comparable 1973 models, a price rise of from 3 to 5 per cent can be anticipated. This represents the basic cost increase to the manufacturer for producing the item.

National legislation also has stipulated the inclusion of a number of safety features on certain types of equipment. These required safety features will contribute substantially to the increased cost of certain 1974 equipment. The safety features include Roll Over Protection Systems for tractors over 30 hp. Recognizing that the price increase for a particular vendor or type of equipment could vary substantially, the over-all indication is that those budgeting for equipment purchases should plan for an increase in the order of 5 to 7 per cent depending on the specific type of safety feature that must be included in 1974.

The availability of equipment for purchase in 1974 also is in a state of flux. It depends on the availability of parts and materials for manufacturing the equipment. Shortages may be especially critical for certain types of engines, ball bearings and specific

continued

BUYING STRATEGY *continued*

types of steel. Manufacturers are facing anywhere from 26 to 34 weeks delay in the delivery of parts and materials ordered at this time. This means most of the parts and materials for 1974 manufacturing must be ordered well in advance and stockpiled against potential shortages during the critical assembly period. As a general summary of the situation as it appears at this time, there will not be a shortage of equipment, but there may be a delay in delivering certain types of equipment due to a lack of basic materials and parts.

In the case of irrigation, a price increase of from 4 to 6 per cent across the range of various types of equipment can be anticipated. Supplies appear to be adequate or comparable to 1973 for plastic materials. Parts requiring the use of brass may become short in supply. Deliveries may be slow in some cases.

FERTILIZERS AND PESTICIDES

Considerable variability in price increases and supplies were indicated by the various fertilizer and pesticide manufacturers. Generally, the price increases will be more modest than for turfgrass seeds and equipment, ranging from 1 to 3 per cent. New items being introduced into the market may have even higher prices than comparable items previously marketed. Basically, this 1 to 3 per cent increase is the result of increased costs of production. Regarding supplies, here again the predicted availability of fertilizers and pesticides for 1974 is variable across companies and among specific items.

Concerning the effect of Federal or state legislation on the availability of certain pesticides, no general statement can be made at this time. The Environmental Protection Agency (EPA) legislation concerning limiting the use of mercury is still being appealed, but no decision has been made to date. The current situation regarding banning or limiting the use of certain pesticides varies from state to state or province to province. For example, Wisconsin and New York now have prohibited the use of certain pesticides. Thus, it is recommended that each golf course superintendent check his state or provincial regulatory agency regarding the current laws that apply in that area.

SUMMARY

The key change for 1974 is the limited availability of turfgrass seeds along with a substantial increase in cost. Thus, early purchases and appropriate increases in the budget for this item should be made as soon as possible. Those individuals who delay their seed purchases until the summer just prior to fall plantings may be faced with the unavailability of certain turfgrass cultivars and must make a second, third or fourth choice.

Potential delays in equipment deliveries emphasize the importance of ordering equipment needed for initial spring activities as soon as possible. The cost for specific items will vary considerably depending on the type of unit, particular vendor and amount of safety equipment that must be added. An over-all budget increase of 6 to 7 per cent would be a minimum.

Finally, one should keep in mind that these are just general indications. Even greater increases in cost may be anticipated for certain items. Also, these trends could change considerably depending on the actual situation as it develops under Phase 4. □