OHIO TURFGRASS BONANZA

(from page 32)

der, Clifton Pohling, and Robert Harper. Additionally, Clark Technical College awarded scholarships to Beth Pohl and Henry Chafin.

Scholarships awarded by the Golf Course Superintendents Association of America went to Steve Scott, Steve Early and Robert Cochran.

For the first time in OTF history, the Man of the Year award was presented to two individuals. Malcolm McLaren and Colin Smith were joint recipients of this honor.

New officers for 1973 are: Paul Morgan, Browns Run Country Club,

Robert V. Mitchell, president, GCSAA, (r) presents association scholarships to Steve Scott and Steve Early of Ohio State University. Robert Cochran (not present) also received a scholarship.

Middletown, Ohio, president; Ron Smith, Bowling Green State University, first vice president; Paul Mechling, Sylvania Country Club, Sylvania, Ohio, second vice president; and Glenn Hudson, Walnut Hills Country Club, Columbus, Ohio, treasurer.

Trustees are: John Fitzgerald, Century Toro Distributors, Inc., Toledo and Cincinnati; John Laake, Crest Hills Country Club, Cincinnati; Lou Greco, Squaw Creek Country Club, Vienna, Ohio; Bill King, Great Oaks Joint Vocational Schools, Cincinnati; Don Collins, Upper Landsdowne Golf Links, Ashville, Ohio; Bill Eble, Ohio Toro, Cleveland; Jim Seigfried, Losantiville Country Club, Cincinnati; and, Fred Buscher, area extension agent, horticulture, Ohio cooperative extension service. □

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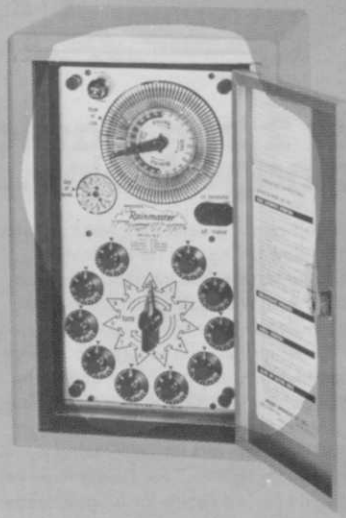

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HOW MUCH TO SPEND ON IRRIGATION?

(from page 14)

$54,000 total or $450 per acre.

There is no irrigation labor cost but there is an additional cost for repair, maintenance, and inspection of $6,000 per year or $50 per acre. Thus, we have a bench mark figure of $500 per acre, plus water cost annually, to do the ideal irrigation job.

At the other extreme, assume an irrigation system capable of supplying the minimum amount of water to keep the turf alive without regard to timing. The system will make no distinction between greens, fairways, or rough, and will seldom contribute to anything vaguely resembling playing the quality of the turf. The system may, in fact, preclude use of the turf during certain hot spells or specific playing times. However, the system is a minimum cost distribution system and may contribute to lower mowing and fertilization costs.

This system may have costs of $50 mixed, $20 labor and $30 repairs and maintenance for a total annual cost of $100 per acre plus water. We now have a cost range against which turf quality differentials can be compared.

A second approach to this problem is to rate turf quality acceptability against an artificial turf to determine comparative costs. Assuming artificial turf will range in cost, installed, between $110,000 and $440,000 per acre, with a life expectancy of 10 years, the annual cost per acre will range from $15,400 to $61,600.

Obviously the entire acreage for a golf course does not need to be in artificial turf so some portion (perhaps other than green and/or fairways) of this cost will be deleted. However, for other types of turf area this begins to give another bench mark since irrigation and other cultural operations are eliminated. Rather than in terms of what must be spent, this second approach tends to establish an upper limit of costs.

The third approach to determining the relationship between optimum turf quality and minimum cost is to examine what the preference system of potential users may be. This approach attempts to relate expected revenue to costs.

Although the usual product demand analysis may not be appropriate, some approximation seems necessary to provide any answer to the basic question of how much must be spent for turf maintenance. By no means do I have the answer. However, perhaps by suggesting a methodology, sufficient discussion can be prompted to direct attention toward a solution. Let us again use the golf course as an illustration.

There is theoretically a demand function for the service called a round of golf. For the individual this demand is a function of many variables including: price, playing quality, distance from residence (or office), aesthetics, difficulty, time, and turf quality. The aggregate demand is a summation of the individual demand functions plus other aggregate variables including population and income.

Golf courses tend not to be homogenous because of differences in physical layout, landscaping, location and, of course, turf quality.

The problem is to determine the relationship among the many variables as they relate to the number of rounds of golf the individual wants to play. This may be expressed in terms of a mathematical equation. Anything that is not a fixed factor could be inserted as a variable to

Rounds of golf and price are easily quantified. Turf quality is not, as yet. However, an index system ranking qualities from 0 to 10 (0 = unmake the determination more meaningful.

acceptable and 10 = ideal) can be arbitrarily developed. For each number rank there would be a corre-

(continued on page 49)

Table 1. Turf Quality Index (0 = unacceptable, 10 = ideal)

Rank	Description
0	Natural grass, no mowing, irrigation to keep grass alive.
1	Greens mowed every two weeks, irrigation to maintain essentially green color.
2	Fairways mowed occasionally.
3	Differential treatment of greens and fairways.
4	Roughs trimmed and greened.
5	Present turf quality.
6	Night irrigation every other day.
7	Greens maintained in uniform springy condition.
8	Fairways mowed and irrigated twice weekly.
9	Irrigated and mowed every other day.
10	Irrigated and mowed nightly, turf always green and uniform. Constant maintenance crew.

—insect report—

INSECTS OF ORNAMENTALS

MEALYBUG
(Conchaspis angraeci)

FLORIDA: Adults collected from umbrella tree *(Grassaia actinophylla)* at nursery in Gainesville, Alachua County, September 18. This is a new county record.

GEOMETRID MOTH
(Thysanopyga intractata)

VIRGINIA: Larvae heavily damaged American holly in four counties, Northumberland, Prince George, Hanover, and Westmorland. These are new county records.

OAK LEAFTIER
(Croesia albicomana)

WEST VIRGINIA: Egg survey for 1972 showed decrease since previous years. Expect 300,000 acres will sustain negligible to moderate defoliation in Pocahontas and Greenbrier County area.

ARMORED SCALE
(Lecanodiaspis pruninosa)

NEBRASKA: Survey of 5 Lincoln area (Lancaster County) parks indicated light to severe infestations on honey locust, hackberry, and American elm.

TREE INSECTS

NANTUCKET PINE TIP MOTH
(Rhyacionia frustrana)

VIRGINIA: Unusually severe damage reported to pine plantations and yard trees in Portsmouth area, Nansemond County during week of November 24. FLORIDA: Pupae heavy on 132 loblolly pine trees, *Pinus taeda*, at Gainesville, Alachua County November 10.

ORANGESTRIPED OAKWORM
(Anisota senatoria)

NEW JERSEY: Larvae completely defoliated several thousand acres of oaks in southern Ocean County. Present each summer in small scattered spots, this is largest single infestation ever noted in State.

OBSCURE SCALE
(Melanaspis obscura)

KANSAS: Heavy on bur oaks near Wichita, Sedgwick County. Overwintering nymphs averaged 400+ per square inch, many twigs and branches dead.

FALL WEBWORM
(Hyphantria cunea)

NEW MEXICO: Damage heavy on many shade trees in most of state. Larvae, a nuisance around households.

FOREST TENT CATERPILLAR
(Malacosoma disstria)

KENTUCKY: Larval defoliation 100 percent on some oak trees in Hopkins and McLean Counties. Increased defoliation expected. PENNSYLVANIA: Egg mass and first instar larvae found on sugar maple in Somerset County. Many sugar maples showing dead branches and limbs due to damage of past two years.

BENEFICIAL INSECTS

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(Apis mellifera)

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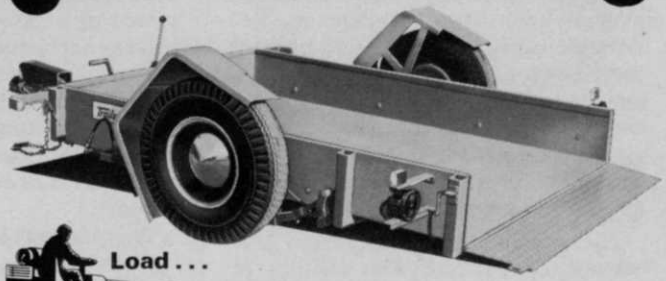

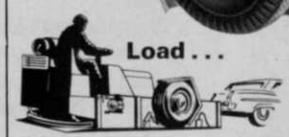

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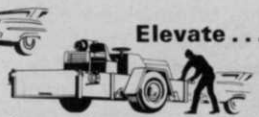

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Maryland Sod Production Costs The Key To Business Success

By BILLY V. LESSLEY and
FRED T. ARNOLD
Professor and Research Assistant, respectively
Dept. of Agricultural and Resource Economics
University of Maryland

Editor's Note: Getting a fix on production costs of sod has been a primary goal of the sod industry. But, the industry as a whole is too diverse to make broad generalizations. Economists have thus tended to concentrate on costs of production within a given state. The following article was prepared from questionnaires answered by 90 percent of the Maryland producers who grew and/or sold sod in 1968 and 1969. In future issues WEEDS TREES and TURF will be publishing cost of producing sod in other states.

THE TURFGRASS INDUSTRY is a rapidly expanding segment of Maryland's agricultural economy. In fact, it demonstrates the interdependence between the state's agricultural and non-agricultural sectors.

In recent years, growth in the turfgrass industry has exceeded overall agricultural expansion. Reliabable estimates show a 70 percent increase in cultivated turfgrass acreage over the five-year period of 1963-1968. During this period, acreage increased from 7,000 to 11,590 acres. Of the 11,590 acres in 1968, 3,739 acres were harvested.

The revenue generated from this harvest contributed $3.0 million to Maryland's farm income and $10.9 million to other sectors of the state's economy from transportation and installation of turfgrass. During 1969, cultivation increased to 12,732 acres with an accompanying increase in farm-level income to $3.3 million.

The cost estimates derived from detailed interviews with turfgrass producers were divided into variable and fixed costs. Variable costs are the expenses incurred for employing variable inputs whose quantity increases or decreases with the level of output. Fixed costs refer to the expense incurred by a firm for employing fixed resources.

Table 1. Average Variable Cost of Production for Alternative Sizes of Turf Farms, Maryland, 1968

Item	Producer Size Group: Less than 100 Acres	100-150 Acres	151-300 Acres	Greater than 300 Acres	All Growers
	—Dollars Per Acre, Two-Year Production Period—				
Seed	29.00	22.40	22.10	29.00	26.69
Fertilizer	18.45	16.71	19.11	18.51	17.76
Top-dressing	24.08	25.37	25.90	32.81	26.73
Herbicides	6.36	8.56	6.49	10.69	7.32
Lime	10.64	10.33	9.76	8.42	9.76
Fuel and oil	7.03	7.74	5.09	7.97	6.81
Production labor	34.02	35.62	32.66	31.36	33.47
Interest on variable capital	17.68	17.18	16.56	18.86	17.60
Average variable cost	147.26	143.91	137.67	157.62	146.14

Supply expenditures included the value of all variable inputs whose quantity could be altered within the production period to effect a change in output. For turfgrass production, variable cost is comprised of expenditures for seed, fertilizer, herbicides, insecticides, lime, fuel and oil, production labor (labor expended for field operations) and interest (eight percent) on variable capital. Variable costs for alternative sizes of farms are reported in Table 1.

The largest single component of average variable cost was the expense incurred for production labor. Because labor accounted for such a large proportion of variable cost, 23 percent on average, the data dealing with labor requirements were subjected to statistical analysis in an attempt to discover possible sources of labor economies. Analysis of variance and sequential testing were used to identify which of the cultural practices reported in Table 2 would lead to significant labor reductions as farm size increased.

Labor reductions, significant at

(continued on page 46)

Table 2. Average Labor Requirements for Turfgrass Production[a]

Cultural Practice	Farm Size: Less than 100 Acres	100-150 Acres	151-300 Acres	Greater than 300 Acres	All Growers
	—Hours Per Acre, Two-Year Production Period—				
Seedbed preparation	3.55	2.37	1.99	2.50	2.64
Stone removal	3.33	3.15	0	0	3.26
Seeding	0.86	0.87	0.51	0.40	0.67
Top dressing	0.79	0.88	1.17	0.43	0.80
Spraying	0.65	0.53	0.50	0.61	0.57
Mowing	8.18	10.03	10.26	6.76	8.96
Total	16.09	17.14	13.69	10.61	14.62

[a]Simple summation by cultural practices will not yield the reported total labor requirement for each size of farm. Each estimate of the labor requirement by cultural practice was computed from only those growers in each farm category who actually performed that practice. Total labor for each size of farm is therefore a weighted summation of the labor requirement by cultural practice.

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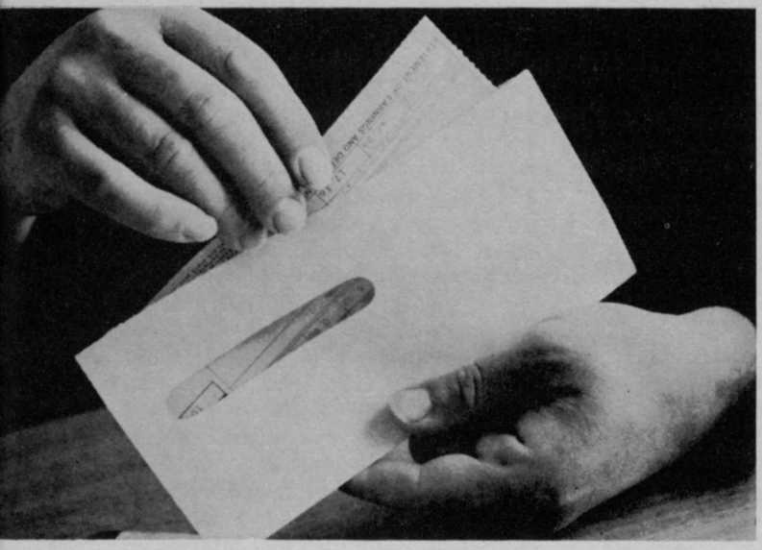

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Table 3. Average Fixed Cost of Production for Alternative Sizes of Turf Farms, Maryland, 1968

Item	Producer Size Group				
	Less than 100 Acres	100-150 Acres	151-300 Acres	Greater than 300 Acres	All Growers
	—Dollars Per Acre, Two-Year Production Period—				
Machinery and equipment					
Depreciation	36.16	24.48	20.10	13.58	25.24
Repairs	20.88	14.16	11.62	7.86	14.60
Insurance	3.76	3.54	2.10	1.42	2.62
Permanent structures					
Depreciation	8.12	7.56	7.36	5.66	7.08
Repairs	2.66	2.48	2.42	1.86	2.32
Insurance	2.40	2.24	2.18	1.68	2.10
Supervisory services	3.42	7.31	9.09	28.56	10.04
Real estate tax	8.31	7.95	8.98	8.70	8.17
Interest on fixed capital	27.36	21.58	19.48	17.10	21.78
Land rental rate	34.00	34.00	34.00	34.00	34.00
Average fixed cost	147.07	125.30	117.33	120.42	127.95

SOD PRODUCTION COSTS

(from page 44)

the 95 percent level, were observed for seedbed preparation, seeding and stone removal. In general, it was found that the largest farms were somewhat more efficient in their use of labor than the smallest farms and that some opportunities did exists for decreasing production labor requirements by increasing cultivated acreage from less than 150 to more than 150 acres.[2] However, the decrease in production labor did not lead to a reduction in production labor expense.

Wage rates, which averaged 40 percent more on the largest farms (as opposed to the smallest farms), resulted in almost constant production labor expense for all sizes of farms.

The cost of variable supply inputs (seed, fertilizer, top-dressing, herbicides, lime and interest on variable capital) declined gradually from $106.21 per acre on farms with less than 100 acres to $99.92 on farms with 151 to 300 acres, and increased to $118.29 on farms with more than 300 acres.

Farms with more than 300 acres typically employed more variable capital inputs in their production process in an attempt to produce a better quality grass than was produced on the less intensive operations of competing growers.

The majority of growers with more than 300 acres harvested a portion of their acreage and realized that the better quality grass was easier to harvest, easier to market and could command a premium price.

Expenses for fixed cost of production included expenditures for land, buildings or permanent structures, large equipment or machinery and supervisory services

Fixed costs reported in Table 3 were computed on an assumed machinery and equipment life of eight years with 20 percent salvage value. Fixed costs for permanent structures assumed a 20-year life with zero salvage value. The resulting annual cost for depreciation, repairs and insurance was 14.55 percent value of machinery and equipment complements and 4.95 percent of the new value of permanent structures.[3] Interest on fixed capital was charged at an annual rate of seven percent on the average value of fixed investment. The land rental rate of $34.00 per acre ($17.00 per annum) was chosen as the most accurate measurement of the opportunity cost of land used for turfgrass production.

The cost of supervisory services, labor other than required for field operations, increased steadily from the smallest to the largest farms. This was due to the prevalence of hired foremen on large turf farms, separation of turf fields, and the more sophisticated, time-consuming sales techniques which were necessary to assure a market for a much greater volume of turfgrass.

The absolute cost of machinery, equipment, buildings and interest on fixed capital declined as farm size increased (Table 4). However, the general decline in average fixed cost of production was offset bv increases in the cost of supervisory services when farm size exceeded 300 acres (Table 4). As a percent of average total cost, the cost of supervisory services increased steadily from 1.17 percent on the smallest farms to 10.27 percent on the largest farms.

Another factor which contributed to the cost structures in Table 4 can be seen by examining variable costs. The inputs of variable capital in the form of seed, fertilizer, herbicides and top-dressing differed with each size of farm (Table 4).

As a group, producers with the largest farms employed the greatest amount of variable capital inputs in their production process. They

Table 4. Average Per Acre Production Costs, Maryland Turf Farms, 1968

Item	Producer Size Group				
	Less than 100 Acres	100-150 Acres	151-300 Acres	Greater than 300 Acres	All Growers
	—Dollars Per Acre, Two-Year Production Period—				
Fixed Cost					
Machinery and equipment					
Depreciation	36.16	24.48	20.10	13.58	25.24
Repairs	20.88	14.16	11.62	7.86	14.60
Insurance	3.76	3.54	2.10	1.42	2.62
Permanent structures					
Depreciation	8.12	7.56	7.36	5.66	7.08
Repairs	2.66	2.48	2.42	1.86	2.32
Insurance	2.40	2.24	2.18	1.68	2.10
Supervisory services	3.42	7.31	9.09	28.56	10.04
Real estate tax	8.31	7.95	8.98	8.70	8.17
Interest on fixed capital	27.36	21.58	19.48	17.10	21.78
Land rental rate	34.00	34.00	34.00	34.00	34.00
Average fixed cost	147.07	125.30	117.33	120.42	127.95
Variable cost					
Seed	29.00	22.40	22.10	29.00	26.69
Fertilizer	18.45	16.71	19.11	18.51	17.76
Top-dressing	24.08	25.37	25.90	32.81	26.73
Herbicides	6.36	8.56	6.49	10.69	7.32
Lime	10.64	10.33	9.76	8.42	9.76
Fuel and oil	7.03	7.74	5.09	7.97	6.81
Production labor	34.02	35.62	32.66	31.36	33.47
Interest on variable capital	17.68	17.18	16.56	18.86	17.60
Average variable cost	147.26	143.91	137.67	157.62	146.14
Average total cost	294.33	269.21	255.00	278.04	274.09

spent 23 percent more for top-dressing fertilizers and 46 percent more for herbicide applications than the average for all growers in Maryland. The cost of employing these inputs was not a function of the size of farm, rather it was a function of management decisions. These more intensive applications of variable capital were an attempt to produce a higher quality, more uniform product which could be marketed with greater ease than turfgrass produced by the less intensive operations of competing producers.

In any examination dealing exclusively with costs, there is an inherent danger of excluding the critical economic variable which ultimately determines the success or failure of a business enterprise, profit or return to management. From the productive process, each of the four factors of production earns a return. Land earns rent, labor receives wages, capital earns its return as interest and management receives profit.

Returns to land, labor and capital have been incorporated into the cost of producing turfgrass by the inclusion of rent, wages and interest charges into the statement of average total cost. Any residual which remains between total cost and total revenue, whether positive or negative, must therefore revert to management.

Receipts for one acre of unharvested Common Ky. Bluegrass or a mixture of Bluegrasses and Red Fescue averaged $316.77 in 1968 (Table 5). Growers with the largest farms, typically producers of the best quality sod, received the highest price, averaging $340.25 per acre.

Often, turfgrass producers who incurred higher costs while attempting to improve the quality and appearance of their product earned a greater net return than growers who produced at a lower cost.

For example, farms with more than 300 acres received the highest price for unharvested turfgrass in 1968, while farms with between 151 and 300 acres averaged only $311.60 for grass of the same variety. The end result was a return to management of $62.21 per acre (two-year production period) on the largest farms and $56.63 on farms with 151-300 acres, the latter being farms which had the lowest average total cost of production (Table 5). Again, this can be explained by the different levels of costs and returns associated with the respective size of farm.

Net return to management for other sizes of farm are also shown in Table 5.

Table 5. Return to Management from Sale of Turfgrass by the Acre, Maryland, 1968

Item	Farm Size				
	Less than 100 Acres	100-150 Acres	151-300 Acres	Greater than 300 Acres	All Growers
	$ Per Acre	$ Per Acre	$ Per Acre	$ Per Acre	$ Per Acre
Gross receipts per acre	304.16	333.33	311.60	340.25	316.77
Less variable cost per acre including hired or operator labor equals	147.26	143.91	137.67	157.62	146.14
Return to land, fixed capital and management	156.90	189.42	173.93	182.63	170.63
Less fixed costs including seven percent on fixed capital and $34.00 land rental rate equals	147.07	125.30	117.30	120.42	127.95
Return to management	9.83	64.12	56.63	62.21	42.68

Larger farms, through their ability to spread fixed costs over more acres, were able to produce turfgrass at a lower cost than farms with less than 100 acres. However, a portion of the cost savings on larger farms was offset by increasing supervisory expenses. The net result was a higher average total cost on farms with more than 300 acres than on farms with either 100-150 or 151-300 acres.

Four factors can be credited with explaining the observable changes in cost which accompanied increases in size from the smallest farm to the largest producing unit:

1. Declining average fixed costs of machinery, equipment and buildings throughout.
2. Increasing supervisory expense throughout.
3. Higher wage rates on larger farms which offset physical labor economies.

(continued on page 54)

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VERSATILE WALKING THATCHER propels itself. Features positive gear-and-chain tine drive. Lightweight, folding handles, make storage and transport easy. Counterbalanced leg rests, 4 wheels, make handling easy. Lifts thatch efficiently, and thoroughly. 100% steel construction for long life—simple, minimum maintenance!

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E-Z Vac Vacuum Sweepers and Attachments

industry people on the move

Dr. Kenneth L. Parks, appointed director of research and development for Agrico Chemical Company. **Harold W. Long, Jr.,** named director of environmental control for the company's Pierce, Fla. phosphate operation.

* * *

Charles L. Morse, Jr., an investment banker, and **Lee Hazen,** attorney, both of New York City, named to the board of directors of Michigan General Corporation.

* * *

Roger Anderson, appointed sales manager for Wylie Manufacturing. He was formerly area manager for Delavan Manufacturing Company.

* * *

Robert N. Shreve, elected vice president of Conwed Corporation.

* * *

Wayne C. Machado and **Robert T. Morgan,** promoted to sales supervisor of the southern district and midwest district, respectively, for American Cyanamid Company.

* * *

Campbell P. Ridley, appointed technical supervisor—herbicide marketing, for Monsanto Company's agricultural division. He will have responsibility for application equipment technology as related to Monsanto herbicide use and performance.

* * *

Robert E. Weber, becomes vice president of Diamond Shamrock Chemical Company. He will continue as general manager of the Nopco Chemical Division.

* * *

T. Greg Friss and **Jack K. Harms,** joined the marketing management team at Yard-Man, Inc. Friss becomes the company's national sales manager. Harms will be responsible for developing and implementing marketing programs for branded products.

* * *

Eldon C. Davis, to manager of the Chicago regional office of Hercules, Inc. He will replace **Elmer Sayers, Jr.,** who will retire in April.

* * *

Charles W. Middleton, becomes industrial vegetation control specialist for Velsicol Chemical Corporation. He is responsible for marketing and sales of industrial brush and weed control chemicals in the central U.S. Before joining Velsicol, he was chemical department manager for Asplundh Tree Expert Company.

* * *

James A. Fischer, promoted to director of sales and service for The Toro Company. He replaces **P. Robert Scagnetti** who resigned to become head of The Clapper Company.

* * *

Robert J. Sutton, appointed area sales supervisor in the northeast region for the agricultural chemical division of Stauffer Chemical Company.

* * *

Robert F. Perkins, joined Thompson-Hayward Chemical Company as agricultural sales representative. He will be working in parts of Indiana, central Ohio and northern Kentucky.

* * *

Willard Lighty, appointed sales and field representative for Redeturf, Inc. He will also be in charge of the company's research program on turf varieties, new materials and materials handling methods.

The Diggin' Dutchman's 1973 All-Plow Team!...

Job-test any of The Diggin' Dutchman's 1973 All-Plow Line on any field and you'll soon see why Vermeer Vibratory Plows have an underground edge in the plowing industry. Many are quickly mounted attachments for one or more Vermeer trenching machines; others are complete, self-contained plow-in units designed specifically for underground plow-in work. Write The Diggin' Dutchman for complete information or, better yet, call him (515/628-3141) NOW for a FREE demonstration of any Vermeer vibratory plow. It's the world's most complete line! Vermeer Manufacturing Company, 7202 New Sharon Road, Pella, Iowa 50219.

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T-218 — 18 hp buries cable down to 18"

M-147H — 14 hp, buries lines 15" deep

SP-24 — 65 hp, pendulum-action blade

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HOW MUCH TO SPEND ON IRRIGATION

(from page 42)

sponding total operational cost. Since data are not readily available, a joint effort between the greens committee and the superintendent might do this on a questionnaire basis. Figures I and II are two examples of how to develop a turf quality index Table I. is an example of an index.

In the final analysis, the answer to the question, "What must be spent for irrigation or other operations?" is simply "Whatever is necessary to satisfy turf use customers."

This in turn, centers on a determination of what they, the customers, are willing to pay for various types of turf quality. Although the turf industry deals in a service, that service has utility for all present and potential customers — even in the case of local government where the customers may simply be the taxpayer.

Therefore, the quality of turf necessary to provide that service function must relate to revenue — either in terms of dues and greens fees or in governmental budgets from tax dollars.

Until this is specified we remain in the archaic position of guessing how to manage turf. Least cost may not provide an optimum solution. In fact, least cost may be a losing proposition.

As a final comment, many people play golf or use other turf areas. However, we really don't know what factors are involved in either deciding to use a turf area or not, or in selecting among alternatives similar areas.

The turf industry is becoming sufficiently sophisticated that it should devote more effort toward this unknown facet of turf — the user, his motivation, and willingness to pay. □

Figure I. How many rounds of golf would you play at the following prices and qualities of turf?

Turf Quality	Price/round	No. of Rounds weekly	No. of Rounds annually
10	$10.00		
10	9.00		
10	8.00		
10	7.00		
9	10.00		
9	9.00		
9	8.00		
.			
.			
5	8.00		
5	7.00		
5	6.00		
5	5.00		
5	4.00		
.			
.			
1	2.00		
1	1.00		
0	1.00		

Figure II. In order to provide different qualities of turf, costs are incurred which must be covered by greens fees or other money sources. Please indicate your preferences as to quality and fees by indicating number of rounds you would play at each level.

Turf Quality	Green Fee	No. of Rounds weekly	No. of Rounds annually
10	$12.00		
9	10.00		
8	9.00		
7	8.00		
6	6.00		
5	4.00		
4	4.00		
3	3.00		
2	1.00		
1	1.00		

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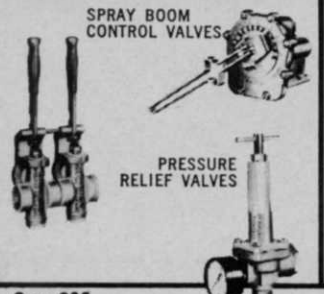

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PROMPT SHIPMENT FROM STOCK

—meeting dates—

Garden Center Symposium, 9th annual, Park Motor Inn, Madison, Wisc., Feb. 6-7.

Midwestern Chapter, International Shade Tree Conference, annual meeting, Holiday Inn, 1926 W. Wisconsin Ave., Milwaukee, Wisc., Feb. 6-8.

Weed Science Society of America, Regency Hyatt House, Atlanta, Ga., Feb. 6-8.

Northern California Turfgrass & Environmental Landscape Exposition, 9th annual, Hall of Flowers, San Mateo County Fairgrounds, San Mateo, Calif., Feb. 7-8.

New England Chapter, International Shade Tree Conference, annual meeting, Kings Grant Inn, Danvers, Mass., Feb. 8-9.

Golf Course Superintendents, Mid-Atlantic Association, annual conference, Lord Baltimore Hotel, Baltimore, Md., Feb. 12-13.

American Society of Consulting Arborists, 6th annual meeting, Mountain Shadows Inn, Scottsdale, Ariz., Feb. 15-18.

Professionals Turf & Plant Conference, 5th annual, Holiday Inn, 80 Clinton Street, Hemptead, L. I., N. Y., Feb. 16.

National Arborist Association, annual meeting, Mountain Shadows Resort, Scottsdale, Ariz., Feb. 18-22.

Sprinkler Irrigation Technical Conference, Fairmont Hotel, Dallas, Tex., Feb. 19-20.

Georgia Weed Control Society, annual meeting, Macon Hilton Hotel, Macon, Ga., Feb. 20-21.

Iowa Shade Tree Disease and Insect Short Course, Iowa State University, Ames, Iowa, Feb. 21-23.

Southern Chapter, International Shade Tree Conference, annual meeting, Sheraton Motor Inn, Fredericksburg, Va., Feb. 25-28.

Northeastern Forest Pest Council, Sheraton Plaza Hotel, Boston, Mass., Mar. 5-6.

Midwest Regional Turf Foundation Turf Conference, Purdue University, West Lafayette, Ind., Mar. 5-7.

Grounds Maintenance Conference, 3rd annual, Waverly Inn, Cheshire, Conn., Mar. 7.

Maryland Sod Conference, 8th annual, Adult Education Center, University of Maryland, College Park, Md., Mar. 8.

Turf Conference, Iowa Golf Course Superintendents Association, 39th annual, Ramada Inn, Waterloo, Iowa, Mar. 12-14.

Western Society of Weed Science, annual meeting, Ridpath Hotel, Spokane, Wash., Mar. 13-15.

Florida Nurserymen and Growers Association, The Breakers Hotel, Palm Beach, Fla., May 17-19.

Western Chapter, International Shade Tree Conference, annual meeting, Hotel Utah, Salt Lake City, Utah, June 17-20.

American Sod Producers Association, annual meeting, Denver, Colo., July 16-19.