he golf boom took the industry by surprise. From a sport generally reserved for the elite, it became every man's game. And the industry suddenly found itself adding its expenditures and sales in the millions. There was little time to keep detailed statistical records of this phenomenal activity—everybody was too busy manufacturing, buying and selling at a frenzied speed.

Although the boom continues, the industry has grown accustomed to the realm of big business. And now, in attempting to analyze what occurred, it has become apparent that the industry is sorely in need of statistics upon which to gauge its future growth. Many major golf industry foundations and associations currently are involved in excellent surveys and studies that will turn former guesswork into solid estimates and statistics. And GOLFDOM is anxious to take on its share of this enormous task.

Last year, GOLFDOM's First Annual Marketing and Research Issue offered pros, superintendents and club managers some sound figures by which they could compare their performances. For this second endeavor, GOLFDOM engaged an independent research organization to help with a study that would delve even more deeply. Aware that pro shop and clubhouse operations at different types of golf facilities can vary considerably, we decided that sales and expenditure figures should be broken down, wherever possible, by major types of facilities-private, semi-private, hotel/resort and public. In this way, a pro or club manager may compare his performance with that of his exact counterpart. And in the case of the superintendent, it was determined that the size of a facility makes a considerable difference in the amounts of materials and equipment he utilizes. Therefore, again wherever possible, figures on course maintenance materials, equipment and labor have been broken into three major size categories-9-hole facilities, facilities of 18 holes or more and nonregulation size courses (par-three, executive, etc.). Through this approach, GOLFDOM's Second Annual Marketing and Research Issue brings some interesting differences to light and makes the figures of greater significance.

Each year, we will attempt to make such improvements in our study and increase its depth, in the hope that we can contribute to the success of our readers and the golf industry.

Finding Out Where Golf is Headin

## **Superintendents**

... spent more than ever before in 1969 and are likely to exceed their budgets for 1970

**U**olf course superintendents spent almost \$67 million on turf materials (chemicals, fertilizers and grass seed) in 1969, to keep courses at some 10,000 United States golf facilities in good shape. Expenditures for major course improvements totaled almost \$72 million, and golf course labor, exclusive of superintendents' salaries, was a staggering \$235.3 million.

GOLFDOM's Second Annual Marketing and Research Study found that almost 15 per cent more was spent on turf materials in 1969 than in 1968, and labor expenditures climbed 16 per cent. In view of these increases, superintendents seem to have been rather conservative in budgeting for these two categories in 1970. Superintendents have slated about \$1.5 million less for turf materials in 1970 than was spent in 1969 and only \$21.7 million more for labor in 1970, representing a decrease of 2.2 per cent and an increase of 9.2 per cent, respectively.

Expenditures for course improvements declined sharply in 1969 and even less is budgeted for 1970. Totals in this category went from almost \$114 million in 1968 to \$71.8 million in 1969, and only \$67 million is slated for 1970. In the breakdown by size of course—9 holes, 18 holes or larger and non-regulation—the 18-hole or larger courses were primarily responsible for the drop in national grand totals, spending an average per facility of \$22,800 in 1968, \$12,600 in 1969, and budgeting \$10,500 for 1970. Nine-hole and non-regulation courses, on the other hand, indicate slight increases from 1968 to 1970.

Fertilizers account for the largest share of expenditures for turf materials—almost \$28.7 million, or 43 per cent of the national total in 1969. Fungicides take second place, with \$19.1 million, or 28.5 per cent of the total. Grass seed is third, with \$6.1 million, or 9.1 per cent; soil amendments, \$5.3 million, or 8 continued

See page 46 for explanatory notes on tables and graphs.



Average Expenditures for Turf Materials							
Size of facility	Fertilizers	Fungicides	Grass seed	Soil amendments	Herbicides	' Insecticides	
9-hole							
1968	\$1,100	\$590	\$370	\$180	\$190	\$160	
1969	\$1,300	\$580	\$340	\$240	\$250	\$120	
Budget 1970	\$1,500	\$700	\$300	\$210	\$260	\$180	
18-hole or more							
1968	\$4,000	\$2,900	\$1.000	\$890	\$680	\$640	
1969	\$4.900	\$3,700	\$1,000	\$900	\$830	\$470	
Budget 1970	\$5,000	\$2,400	\$1,000	\$1.100	\$1,000	\$560	
Non-regulation		Constant Said					
1968	\$1.600	\$480	\$150	\$270	\$410	\$90	
1969	\$1,700	\$590	\$140	\$360	\$390	\$80	
Budget 1970	\$1,800	\$730	\$130	\$400		\$110	

\*Insufficient response precludes deriving a valid average.

Size of facility	Fertilizers	Fungicides	Grass seed	Soil amendments	Herbicides	Insecticides
9-hole						
1968	\$5.3 million	\$2.7 million	\$1.7 million	\$840,000	\$899,000	\$732,000
1969	\$6.1 million	\$2.7 million	\$1.6 million	\$1.1 million	\$1.2 million	\$547.000
Budget 1970	\$7.1 million	\$3.3 million	\$1.4 million	\$992,000	\$1.2 million	\$816,000
18-hole or more						
1968	\$17.2 million	\$12.2 million	\$4.3 million	\$3.8 million	\$2.9 million	\$2.7 million
1969	\$20.8 million	\$15.8 million	\$4.4 million	\$3.8 million	\$3.5 million	\$2 million
Budget 1970	\$21 million	\$10.3 million	\$4.4 million	\$4.6 million	\$4.3 million	\$2.4 million
Non-regulation	Selver 19		angen vir ges			
1968	\$1.6 million	\$482,000	\$149,000	\$272,000	\$415.000	\$ 92,000
1969	\$1.7 million	\$588,000	\$142,000	\$363,000	\$388,000	\$ 84,000
Budget 1970	\$1.8 million	\$734,000	\$126,000	\$402.000	*	\$105,000

### National Expenditures for Turf Materials

\* Insufficient response precludes deriving a valid total expenditure

Expenditures for doir course improvements						
Course size	Average per facility	National totals				
9-hole						
1968	\$3.200	\$15 million				
1969	\$3,400	\$15.8 million				
Budget 1970	\$4.000	\$18.7 million				
18-hole or more						
1968	\$22,800	\$97 million				
1969	\$12,600	\$53.8 million				
Budget 1970	\$10,500	\$44.9 million				
Non-regulation						
1968	\$1,900	\$2 million				
1969	\$2.200	\$2.2 million				
Budget 1970	\$3.400	\$3.4 million				
the state of the s						



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Expenditures for Golf Course Labor' **National Grand Totals** 

up 9.2%



#### \* Exclusive of superintendents' salaries

### 44 • GOLFDOM/ 1970 FEBRUARY

9-hole

from 1969 up 16% from 1968 1968 1969 Budget 1970 \$202.8 million \$235.3 million \$257 million

	Annual Superintendents' Salaries (Per cent of responses in each course type)							
Course type	\$5,000-\$10,000	\$10,001-\$12,000	\$12,001-\$15,000	\$15,001-\$20,000				
Private	35.2%	29.6%	17%	18.2%				
Semi-private	78.6%	14.3%	7.1%	0%				
Hotel/Resort	50%	33.4%	8.3%	8.3%				
Public	68.4%	21%	5.3%	5.3%				
Non-regulation	33.3%	66.7%	0%	0%				

### SUPERINTENDENTS

continued

per cent; herbicides, \$5.1 million or 7.6 per cent; and insecticides, \$2.6 million, or 3.8 per cent. In all categories it was found that courses 18 holes or larger, per facility, spent at least triple the amount spent by 9-hole courses.

Examining the labor costs by course size, the survey indicated that superintendents at courses 18 holes or larger have an average of five full-time and six parttime employees on their staffs, and spent \$39,600 for labor in 1969. Superintendents at 9-hole courses have an average of two full-time and three part-time employees and spent an average of \$10,900 for labor in 1969. Nonregulation courses maintain an average of three full-time and two part-time employees and spent \$16,300 per facility for labor in 1969. In addition to the larger staffs employed by the courses of 18 holes or more, another factor which could account, in part, for the disparity in labor expenditures between 18-hole or larger facilities and the 9-hole courses are the seasons of play. Only 43 per cent of the superintendents 9-hole courses indicated at that their facilities were open for play the year-round, whereas almost 60 per cent of the superintendents at courses 18 holes or larger reported that their facilities were open year-round.

Superintendents' Salaries



GOLFDOM's study also indicated that superintendents at private clubs are generally better paid than those at the four other types of facilities-semi-private, hotel/resort, public and non-regulation. Some 17 per cent of the responses from private club superintendents were in the \$12,001 to \$15,000 salary range, and 18.2 per cent fell into the \$15,001 to \$20,000 range. No superintendents indicated salaries over \$20,000 per year. Responses for superintendent salaries, combining all types of facilities, broke down this way: \$5,000 to \$10,000, 48.4 per cent; \$10,001 to \$12,000, 27.4 per cent; \$12,001 to \$15,000, 12.4 per cent; \$15,001 to \$20,000, 11.8 per cent.

In terms of total investment to date, United States golf course superintendents supervise the usage of golf course equipment that represents a total national investment of almost \$535 million. Of this total, irrigation equipment accounted for almost 45.6 per cent of the national total investment to date in equipment. Tractors represented the second highest investment, with a national figure of more than \$74.9 million, or 14 per cent of the total. Mowers were a close third, with more than \$71.8 million, or 13.4 per cent of the total.

With only one exception, the course of 18 holes or larger has invested at least twice as much in various equipment categories as the 9-hole course (see chart for breakdown on averages). And in irrigation equipment, 18-hole or larger facilities have invested almost five times more per facility than the 9-hole courses.

Installations of fully automatic continued

Response by course size					renan neopo
Course size	Automatic	Semi-automatic	Manual		
9-hole	20%	11.7%	68.3%		
18-hole or more	29.2%	13.2%	57.6%		
Non-regulation	16.7%	16.7%	66.6%		
Response by course type					
Course type	Automatic	Semi-automatic	Manual		
Private	25.4%	13.2%	61.4%	25.6%	
Semi-private	23.6%	14.6%	61.8%		12.8%
Hotel /Resort	40%	13.3%	46.7%		
Public	23.8%	4.8%	71.4%	Fully	Semi-

### Types of Irrigation Systems Presently Installed

### SUPERINTENDENTS

continued

and semi-automatic irrigation systems apparently are making strong headway. Nearly 39 per cent of the superintendents responding indicated that their facilities already have either fully automatic or semi-automatic systems. Of those who said they have such irrigation systems, more than 68 per cent were superintendents at 18-hole courses.

Superintendents who said they did not have fully automatic or semi-automatic systems were asked if they plan to convert to either of the two irrigation systems. More than 38 per cent of the respondents to this question replied that they did have such plans. The overwhelming majority of these, 70 per cent, were superintendents at private facilities with 9 and 18 holes or more.

Those who said they plan to convert to either fully automatic or semi-automatic irrigation systems were asked to estimate when the new systems would be installed. Almost 63 per cent of the respondents indicated various dates from this year to 1971. Notes: National grand totals in this golf course superintendent study are based on the total 9,894 golf facilities in the United States, regulation and non-regulation courses combined. Since the amount of materials and equipment needed by a superintendent is primarily influenced by the size of the course which he and his staff maintain, figures in this study are broken down by the common size categories: 9 holes, 18 holes or more and non-regulation (par-three, executive, etc.).

61.6%

Manual

For purposes of also giving national totals by size of facility,



the following figures were used to project our averages: 9-hole facilities, 4,636; facilities of 18 holes or more, 4,254; non-regulation facilities, 1,004.

However, in two cases—superintendents' salaries and types of irrigation systems—figures are given by five course classifications: private, semi-private, hotel/resort, public and non-regulation. For purposes of national totals the following breakdown on number of facilities was used: private, 3,738; semi-private, 3,581; hotel resort, 400; public, 1,171; non-regulation, 1,004.

Figures in the millions have been rounded to the nearest hundred thousand dollars; figures in the thousands have been rounded to the nearest hundred dollars, and figures in the hundreds have been rounded to the nearest ten dollars. Therefore, rounded national totals, when added, may not precisely agree with the national grand totals, since these are the sums of unrounded figures.

	9-hole	18-hole or more	Non-regulation
Irrigation equipment	\$9,400	\$45,700	\$6,000
Tractors	\$4,300	\$11,200	\$7,400
Mowers	\$4,500	\$10,900	\$4,500
Trucks	\$2,200	\$4,500	\$3,000
Small utility vehicles	\$1,200	\$4,300	\$1,200
Sprayers	\$940	\$2,400	\$780
Aerators	\$900	\$2,400	\$580
Shredders	\$420	\$960	\$1,000
Spreaders	\$440	\$870	\$470
Spikers	\$500	\$700	\$590
Trailers	\$220	\$720	\$290
Other equipment	\$1,500	\$ 5,800	\$500

2.8%	1.3%	1.2%	1.1%	.8%	6%	1
Aerators	Shredders	Spreaders	Spikers	Trailers	Other	
\$15.3 million	\$7 million	\$6.2 million	\$5.9 million	\$4.4 million	\$32 million	

Here is a fast, easy reference to the most frequently asked questions about automatic irrigation

# Automatic Irrigation: Ask the Experts

By the EDITORS and FRED V. GRAU

he following questions, which were gathered by Dr. Grau from superintendents, represent the areas most puzzling to superintendents. GOLFDOM asked the major manufacturers of irrigation equipment to answer at least one question. The responses, therefore, are solely the opinions of the individual manufacturers.

### Question: Are present mains usually adequate or must all new lines be installed?

Answer: This would depend on the requirements of the golf course. The amount of water and pressure needed will vary with each course due to the layout. After the quantity and pressure are determined, the municipal water authority should be consulted. Quite a few courses use existing water facilities. Where pressures are not adequate, a booster pump can be used.

(Certain-Teed Products Corp.)

Answer: Generally, a manual system will have mains that are oversized for an automatic irrigation system. The reason for this is that much larger volumes of water are required per fairway on manual systems than automatic systems. It is virtually impossible for the irrigator to run around the golf course and manually move each individual sprinkler(s) down each fairway, nine or 18 fairway outlets (let's say) No. 1, No. 2 and perhaps one-half of No. 3. These sprinklers all operate for a particular period of time and apply a



prescribed amount of water.

The number of sprinklers that the irrigator uses depends on the capacity of the pump and the gallonage required per sprinkler. Because it is running several sprinklers on the fairway, the main must be sized to carry the gallonage required to run all sprinklers at one time. An automatic system is designed and programmed so that one or possibly two sprinklers are operating simultaneously on each nine or 18 holes of the golf course. Thus, the main on an automatic system can be sized to the gallonage required to run one or two sprinklers.

The above shows why the difference in cost between an automatic and manual irrigation system: piping materials are considerably higher for a manual system than automatic system. But the automatic system equipment (valves, controllers, and so forth) run the cost of the automatic system up more than the manual system. The justification for the automatic system is the savings in labor and assurance that the proper amount of water is being applied at the proper time.

(Johns-Manville Sales Corp.)

## Question: Which is better—double row or single row outlets?

Answer: There are many variables which enter into the above question, but logically a double row system is better than a single row system. Wide fairways indicate a need for double row sprinklers, but narrow fairways with high and variable wind conditions may also require double row sprinklers. If the sprinkler is to cover the fairway, and wind conditions are generally favorable, a single row system is totally adequate (and certainly less costly to the golf club).

(Johns-Manville Sales Corp.)

Answer: Most of the better golf courses used double row outlets. The double row outlets provide a better distribution of water and also keep the fairway clear of sprinkler heads.

(Certain-Teed Products Corp.)

### Question: Will the system cut itself off in case of a down pour that comes during the night while the system is operating?

Answer: There are automatic shut-off devices on the market today that can be connected to the automatic controllers which will shut the system off in the event of rain. There are a number of factors that should be taken into consideration before this step is tak*continued on page 50* 



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### **ASK THE EXPERTS**

#### continued from page 48

en, however. For example, will a rain shut-off device provide uniform distribution over the entire golf course? Will the rain shut-off device turn off the system if there is insufficient rainfall? Many superintendents prefer to "read the weather" and make their own decision rather than rely on a mechanical device. Central control systems on the market today enable the superintendent to cancel an 18-hole automatic system by merely flicking three switches in his office or pump house. Often it's better to allow the system to continue through one complete cycle rather than shutting it off in the middle of a cycle so that uniform distribution of water is obtained over the entire course. Naturally, in the event of a heavy down pour, he will want to turn off the system. This is one important advantage of a centrally controlled system. He does not have to drive over the entire golf course turning off the satellite controllers.

### (Toro Mfg. Corp.)

Question: What are the guidelines of responsibility on the part of the firm making the installation? Should they come back to repair sunken lines, broken pipes, etc?

Answer: The answer to this question will depend upon the written agreement between the golf club and the contractor prior to installation. Most contractors will assume responsibility for repairs to the system for an agreed upon period of time after date of installation. The contractor's responsibility, of course, would be limited to repairs required as a result of the installation. Modifications or additions would not fall into this category.

### (Toro Mfg. Corp.)

Question: How many pumps and what type and size are needed for an average 18-hole course? Answer: We prefer a multi-pump system as opposed to a single pump. Two pumps minimum, one small pump (200 g.p.m.) and a larger pump (600 g.p.m.). Many times a three pump system is desirable. Multi-pumps give standby operation should a pump fail, and also give greater flexibility to the system.

(Rain Bird Sprinkler Mfg. Corp.)

### Question: Are there any guarantees that the system will not be under-designed?

Answer: The best assurance that the system will not be under-designed lies in the choice of an experienced and qualified sprinkler system designer with references from previous golf course installations from his designs. Once chosen, give the designer every assistance in determing the particular characteristics at the course, such as water sources, soil conditions, exact width, shape and length of fairways, greens, tees and other areas that will need water, wind conditions, number of hours per day that sprinklers can operate without interferring with play. Much of this information furnished by the superintendent can be very helpful to the designer in avoiding any misunderstanding that could result in a deficiency in the system or an over-design resulting in unnecessary costs.

(Buckner Sprinkler Company)

Question: What is the extra cost of an automatic system compared to a standard system? What is the extra cost of two rows of pipe in the fairways compared to a single row?

Answer: There is wide variation, but generally the cost will run two to 2 1/2 times more for an automatic system. The two row system will run approximately 15 per cent to 20 per cent more than a single row system.

(L.R. Nelson Mfg. Company)

Editor's note: In the months to come, GOLFDOM will be publishing more questions and answers concerning on automatic irrigation systems.

### TALK TO THESE BUCKNER DEALERS ABOUT THE CP-2

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