

money—not management programs.

(4) From this record, it is a simple matter to prepare budget.

(5) There are no problems in fitting this system into any bookkeeping system.

All other records are relatively easy to categorize. These are primarily a matter of proper entry into the record book.

These include—

(1) Purchases

(2) Equipment—Inventory and Depreciation

(3) Basic data record showing course description—property boundaries, irrigation and drainage lines, acres of rough and fairway, size of greens and tees.

Records of this type are described fully in several articles published—and those particularly of our Pilot Study of Maintenance Costs—and subsequent articles on the topic, written by the Green Section's Dr. Marvin H. Ferguson, which appeared in the *USGA JOURNAL AND TURF MANAGEMENT*.

Complete records and budget information are necessary for several reasons—and I believe it is best summed up in the statement of one housewife keen in the way of budgeting who once said "records are necessary so that you don't wind up with too much year at the end of your money!"

## ***Keeping Up with Research is Good Business***

By **DR. MARVIN H. FERGUSON**

Mid-Continent Director and National Research Coordinator, USGA Green Section

**R**esearch continues to grow in size and in importance. In 1962, 16.5 billion dollars are to be spent in the United States. This is five times the \$3 billion spent for research in 1950. If research were considered an industry it would rank in the top 12. It employs 350,000 people. Government will pay two-thirds of the cost of the research done in 1962, but 75% of the work will be done by industry under government contract.

### **Type of Research**

Much of the government sponsored research is of a basic nature. It deals with all aspects of physical and biological science. Ultra-high temperatures, cryogenics (extremely low temperatures), direct energy conversion systems, light qualities, etc., are some of the areas where much effort is being expended.

Discoveries made in basic research may have no preconceived application, but as facts become available they can be pieced together to improve our knowledge and technology. Such discoveries can be applied in many areas of biological science, and so while the nation's space effort may be the prime reason for research of this magnitude, the bonus values that result from it may even provide us with additional knowledge for growing better turf.

### **Where Does Turfgrass Fit In?**

This background will indicate that our concern with turfgrasses represents an infinitely small effort when compared

with the total research expenditure. However, our opportunity to learn new facts is not limited by our own small efforts because of the fact that we can borrow from the large reservoir of basic information.

We are going to need all the new information that we can acquire. We shall be faced with new problems. An example is the new stadium to be built in Houston for use of the Houston Colt .45 baseball team. The stadium is to be dome-covered and air conditioned. It appears that light will limit the growth of grass. Supplemental light can be supplied artificially, but such light generates heat, thus increasing the refrigeration load.

Even though our part in the total research effort is comparatively small, it may be considered big in absolute terms, and the job of keeping up with progress is a big one. Presently \$550 million a year is being spent for agricultural research. Fifty-two per cent of this is by industry, with the remainder being done by federal and state governments and by non-profit organizations. There are more than 9,000 pesticides on the market today for controlling insects, diseases, weeds, nematodes, and rodents. Two years ago there were only about three pre-emergence crabgrass controls on the market. Today there are more than 20 and this is just the beginning.

Basic research on the activity of

enzyme systems within a plant has provided the knowledge that has permitted the development of material which will interrupt or alter this enzymatic activity. This is the basis for an unusual degree of selectivity in weed control. The triazine compounds which work on this principle appear to be the forerunners of a long series of such materials.

Thus, the products of basic research are all potentially capable of being fitted into our particular discipline to provide more effective and more efficient tools.

### **The Green Section Role**

At this point, we might pause to justify the existence of the Green Section. The duties of the Green Section staff are largely those of keeping up with research activities, being aware of new discoveries and new products, and attempting to relate these advances to golf course problems. We cannot hope to keep up—but we can devote our full time to the effort. You ask much of your superintendent, who, with a course to maintain, a crew to supervise, and myriad miscellaneous duties, also obliged to try to keep up with what's new. Here is an area where the Green Section Visiting Service can help you.

In addition to following the progress of other research, the Green Section, through the USGA Green Section Research & Education Fund, Inc., sponsors and supports research through grants to state institutions. Many of these grants support projects designed to solve problems peculiar to golf. We may cite Penn State's efforts with Colonial bent, V.P.I.'s overseeding study, and Texas A. & M.'s physical studies on soils. Yet all these projects will yield benefits that carry beyond the immediate problems.

In the 41 years of its existence the Green Section has contributed much to the knowledge of golf course maintenance through its research effort. It has developed fungicides, herbicides, and insecticides. Examples are the testing and subsequent recommendation for use of mercury fungicides in the middle 1920s; thiram in 1942; sodium arsenite in the early 1930s; and 2,4-D during and just after World War II. Chlordane was tested by the Green Section long before it was named. Harrington & Ferguson applied some to turf on a nursery at Rolling Road in Baltimore at 100 times the rate later

recommended. Through such painful experiences has the knowledge been gained which permits members of the Green Section staff to recommend safe rates of use with confidence.

Among the grasses selected, tested and released as superior strains are Arlington, Congressional, Collins and Cohansey bents, and Merion bluegrass. Since establishment of the visiting service, grants have supported work from which came Tiffine, Tifgreen and Tifway bermuda. Soils information which permitted publication of specifications for putting green construction has been gained from Green Section sponsored research.

Present research efforts deal with grass improvement; soils studies; disease control studies; controlled environment studies; and with general support of turf-grass research at a number of experiment stations.

### **Research In The Future**

Some problems face all of us with respect to the future of research. This does not apply to our specific interests, but to research in general. Government is likely to continue to sponsor basic research because of the pressure of our space program. National Aeronautics and Space Administration alone will spend \$20 billion before the first astronaut arrives on the surface of the moon. While this work will be done by industry under contract, government will pay the bills. This creates a problem in connection with patents. A company which makes discoveries under such contract research cannot expect to control the patent rights to such discoveries. Yet, if the company does not receive such rights, its incentive to do research is impaired, if not destroyed.

To do research, competitively, in such a fast-moving area is almost beyond the capabilities of many companies without the help of government contracts. The combined efforts of the interaction of these facts may constitute a threat to our patent system which has served us so well.

There is a possibility that government may find it necessary to establish a research organization of its own. Thus many of the basic patents would come to be government property and companies would be licensed to manufacture the

products covered by such patents. We make no attempt to editorialize on this matter, but it is a matter of importance to all. Our national welfare and our progress have been linked to research efforts. If we are to continue to advance, we must continue our research efforts.

In the last decade, technical progress has been amazing. Perhaps the surprising thing is that costs have increased **only** five-fold. We, in turn, have come a long way in turf management. Management is more efficient because of new tools, new chemicals, new grasses, and

new techniques. There is even now a mass of basic information which has not yet been translated into practice. As long as researchers are busy, this will ever be so. DDT was discovered in 1874, but it was not put to use as an insecticide until the early 1940's.

Our business is to see that this backlog does not get too big. With ever increasing research the task will become more difficult, but we must try. The thought I would like to leave with you is that "keeping up with research is good business."

## ***Don't Overlook Public Relations***

By ALLEN M. OAKLEY

Member, USGA Green Section Committee, Quincy, Ill.

**P**ublic relations, whose development since the turn of the century parallels the growth of golf, today has been refined into a science that can be applied to our problems in golf course maintenance.

We must consider a foursome—the player, the green superintendent and his association, the green chairman, the club directorate.

If we have been overlooking public relations, let's find out what it means. To paraphrase one definition: "Public relations in golf is essential today because we have found that information, understanding and good will are necessary for the well being of that fortunate member of the foursome to whom we accord the honor on the tee—the player."

Each of us in the foursome has something to sell, and the green chairman must bring buyer and seller together. So it is to him that I address myself.

The player has something to sell. He wants the best possible conditions for his enjoyment—and we all know he can be the most vocal of salesmen on that point.

Though we cannot heed all his demands, nor all too often his advice, he can become our best salesman if we inform him, develop understanding both in and with him, and through him spread good will. Those are the translations for us of the special language of the science of public relations. The green chairman must be the key man in putting them into practice.

There was a day when he and his

greenskeeper dealt with an inexact science. Today he lives in a new and better world, made possible by experience, research and organization.

How can he make the most of it? How apply public relations?

1. He must recognize the full importance of his job and publicize its objectives and accomplishments.
2. He must understand the nature of the advances that have been made.
3. He must take full advantage of the modern services available.
4. He must recognize and encourage the new atmosphere created by a corps of trained and dedicated superintendents.
5. He must balance desire and resources.
6. He must help prepare for the future, both in his own club by creating wider interest in the problems and science of golf course maintenance, and on the broader landscape where training and research are thriving and manpower is needed.

All this adds up to one word: "Inform." It's a formidable weapon against the old fogs of tradition, member apathy and budget restrictions.

So let's sell to the players an understanding of the superintendent's problems, to the board the value of new methods and machinery—their dollar value and satisfaction value, and to the superintendent