THE RESEARCH TEAM . . . The GCSAA and The Green Section

With Vital Commitment to the Future

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AT THE BEGINNING of the 1960s, President Kennedy promised to put an American on the moon within 10 years. What followed was the greatest technological advancement in the history of mankind. In less than the 10 years, an American walked on the moon, and the promise was realized.

How was it made possible? Was it accomplished through great speeches or wishful thinking? Hardly. Rather, it was made possible by defining the challenge, the establishment of the goals and objectives needed to resolve the challenge, and the commitment of the resources and spirit necessary to achieve the objectives.

Perhaps there was a great deal of symbolic significance when astronaut Alan B. Shepard, Jr., took out his trusty moon club and struck that famous golf shot on the lunar surface. That club, which is now enshrined in the USGA Museum at Golf House, forever welded the technological achievement of the Apollo program with the game of golf.

Golf today faces serious challenges that, to be resolved, will require a technological thrust similar to the Apollo program. Barely 20 years after Kennedy committed us to set our aim at the moon, the game has launched a similar project. Though perhaps not equal in scope, this project appears to be at least equal in difficulty. Our own race to the moon will determine the future of golf — and consequently, for each of us who labor within this game, the project will determine our futures.

The challenges are not difficult to identify, to understand, or to define. For many years now, the problems facing golf have become increasingly clear to most golf course superintendents, industrial business people, university scientists, and the leadership of both the USGA and the Golf Course Superintendents Association of America. Each year we've exchanged information that brought to light the developing challenges. The problems have hardly been hidden; after all, many in golf have been aware of and have predicted the escalation of problems for years.

Simply stated, potable water for irrigating fine golf turfgrasses is a rapidly diminishing resource. In addition, even after all the improvements in golf course management, the price of golf still remains too high. Both of these problems affect the game's welfare by tending to drive up the price a golfer must pay to play. At the least, these factors make it difficult for us to reduce the real cost of golf in order to allow people of all ages and economic means to take up the game.

Over the years, golf course superintendents have done an excellent job of holding the annual cost increases of golf course maintenance close to the annual rate of inflation. However, we must now work to reduce, in real dollar terms, the annual cost of golf course maintenance in order to allow the price of golf to become competitive with the other leisure sports.

Real reduction of golf course maintenance costs is in itself a difficult challenge. Complicated by the accelerating scarcity of potable water for golf course irrigation — which some of us have experienced already — and the worldwide increasing demand for the same water, our ability to reduce the price of golf and create expansion becomes a challenge on a scale the industry has never previously encountered.

THE OBJECTIVES of the Turfgrass Research Project are clear and simple to state: It is our goal to develop new grasses that will use 50 percent less water and require 50 percent less maintenance. Though simple to state, to achieve such goals is anything but simple.

The key change in strategy is an emphasis on basic research.

Frankly, we have a wealth of knowledge on fertilizer studies and applied disease and insect control methods from the applied research conducted on existing turfgrass varieties. What we truly lack is the basic knowledge of the plant mechanisms. So enters a new strategy.

For example, basic research is now being conducted to better understand the processes that go on within the turfgrass plant. These physiological processes have not really been understood. However, with the current combination of

research talent and a more realistic level of funding, significant scientific discoveries are anticipated.

This better understanding of physiological mechanisms that control drought tolerance, heat tolerance, and water utilization within the plant will allow the turfgrass breeders to select and screen new varieties.

Another thrust of the research project is in turfgrass tissue culture, a basic science area closely related to genetic engineering. This is potentially a promising area. Tissue culture is an advanced technique of *in vitro* (in the test tube) propagation of individual turfgrass plants cloned from a single plant meristem cell.

On the cutting edge of today's biotechnology, this research could greatly reduce the breeding time normally necessary for selecting and screening for improved environmental tolerances. This also establishes a foundation of knowledge necessary to create new species of turfgrass for golf.

Major developments in this project will have direct applications in food and fiber crops. Imagine what it might mean to unlock the secrets of how some plant cells are able to utilize energy and water more efficiently. Research in turfgrass for golf might improve our ability to feed people.

Over the past 18 months, the start-up phase of the USGA/GCSAA Turfgrass Research Project has accomplished a great deal. A detailed plan of attack has been established covering a 10-year period. Specific time objectives have been determined for each phase of the project, project leaders have been selected to head teams of research scientists, committee members have been designated to visit each major project site, and, most importantly, the program is on schedule.

Basically, the project's initial phase calls for the collection of turfgrass germplasm from around the world. After input from the plant physiologists, the plant breeders will screen for stress factors and desirable genetic traits. Eventually the selected strains will be moved out to beta sites for further study under varying climatic conditions and cultural practices.

One noteworthy example of the project's innovative breadth and provisions for differing regional realities: The golf course superintendent's old nemesis, *Poa annua*, is being approached

Dr. James R. Watson (standing), member of the USGA Turfgrass Research Committee, confers with GCSAA President James W. Timmerman on research matters for 1985.

as a friend instead of a foe. *Poa annua* is being studied to see if its strengths can be enhanced while reducing its weaknesses. Perhaps an improved variety of *Poa annua* will be available because of this effort.

IT IS ESTIMATED that 200,000 people are employed in various phases of golf in the United States, and additional family dependents total another 600,000. That's nearly a million people who are directly dependent on golf for their subsistence and welfare. You can double that number to include all those people employed by turf equipment manufacturers, golf equipment manufacturers, advertising agencies and other segments.

There can be little doubt that golf is more than recreation; it obviously provides a living for a significant portion of the population. The combined financial resources of golfers and those who depend on the game could generate the kind of major funding required to support the research that's already underway.

All those clubs, golf course superintendents and others who have contributed to the turfgrass research fund deserve our gratitude. In the past, those in the game have provided the necessary funding for turfgrass research, but the magnitude of the current challenge requires us to shift from measuring funding in hundreds of thousands of dollars to millions of dollars.

Most people recognize that it takes millions to conduct basic scientific research on this scale. After all, one need only look at medical research or efforts in basic agricultural research.

Let there be no doubt that the basic research needed today in turfgrass science is no less complex or expensive than in those other areas. It will take similar amounts of money to achieve the breakthroughs needed to assure the future of golf.

We — primarily golf course superintendents — can choose to do nothing towards tackling these problems and golf will probably survive with some growth. Most golf courses will continue to plug along, and most superintendents will remain employed. For all practical purposes, however, the game could anticipate a generally stagnant future.

There is another avenue that offers a different future — one of prosperity for golf. We can work together to promote expansion of the game and, to paraphrase Dr. Alister MacKenzie, provide "pleasurable excitement" to millions of new golfers.

For those pragmatists among us interested in the more tangible benefits of our involvement, supporting the USGA/GCSAA Turfgrass Research Project simply translates into new opportunity and increased prosperity. Of course, expansion and opportunity mean more management positions, expanded golf course ownership, and greater income for golf course superintendents. In the most basic tangible terms, it means personal growth and development for each of us.

GCSAA's main role is to improve the management ability of golf course superintendents through continuing education and high professional standards. We also have a responsibility to support fully the subject of turfgrass research program under the auspices of the USGA Research Committee. The degree to which we, as a profession, shall be recognized for the future successes of this turfgrass research project are limited only by the degree to which we dedicate support for the project.

Let us rally our support for this massive research undertaking. Let us become salesmen to our clubs, our fellow superintendents, and our communities — encouraging the broadest possible base of contributors. By the 21st century, we will assure that no one can suggest that this generation of golf course superintendents failed in its responsibility. Our objectives are clear: To develop improved turfgrasses that use 50 percent less water, require 50 percent less maintenance, yet are still green and pleasing to the eye.

We can muster the resources necessary. Let us now commit our spirit and demonstrate our determination — and thus pay honor to the proud tradition of our profession.

Eugene Country Club, Oregon.