

What Research Has Done to Improve Golf Turf

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(Address at GCSA conference)

WE have no developments in the field of turfgrass management that are as spectacular as the development of atomic energy, but we have many examples of fundamental research having produced tools that are of great practical importance. Organic chemists through pure research have produced numerous fungicides and insecticides which have an important place in practical turfgrass management.

Practical or applied research is a little closer to our work than is basic research and we have a tendency to appreciate it more. It is the kind of research where one tests herbicides or other materials under a given set of conditions. The best material is found in a relatively short time and the information is ready to be put to work immediately. This kind of research can be done by a golf course superintendent and it is no less important in the overall picture than is the elaborate investigation of a highly trained scientist.

I like to think of all types of research as being parts of a factory for developing building blocks of knowledge. One type of research turns out a particular type of block while another phase of research develops a different type block of knowledge. We use blocks of knowledge of many different kinds in building a sound program of turfgrass maintenance. Because we build our programs under different conditions, we may not all use the same kinds of building blocks or we may use them in different proportions.

Sometimes blocks of knowledge are developed prior to the time our building has progressed to the point where we can use them. A good example is DDT. This compound was first described by a German chemist named Zeidler in 1874. It was not until 1939 that its insecticidal value became known. In 1943 the material began to be manufactured in the U. S. for use by the Armed Forces and became widely used as an insecticide about 1946. Thus a period

of 72 years elapsed between the time this addition to our knowledge was discovered and the time it found a place in the structure which represents your turf management program.

When we contemplate developments of this kind we cannot escape the conclusion that the development of new information is worthwhile even when the newly discovered facts are not immediately usable. Sooner or later we are quite likely to find the place where these building blocks of knowledge can be incorporated into our structure.

Ten Years' Contributions

Let us enumerate some of the positive contributions that research has made to the business of turf management in the last 10 years. We think that research produces results slowly and to get a better measurement of progress we must pick out some reference point in time past.

In enumerating the contributions we do not differentiate between practical "on the golf course" research, institutional research or industrial research. All have contributed richly to better turf management.

NEW GRASSES

Merion bluegrass, Meyer Zoysia, Emerald Zoysia, Tiffine bermuda, Tiflawn bermuda, Gene Tift bermuda, T-35A bermuda, Pennlu bent, Pennncross bent, and many other lesser known strains and varieties.

NEW FERTILIZERS

Urea-formaldehyde products and high analysis soluble materials.

NEW INSECTICIDES

DDT, chlordane, benzene hexachloride, aldrin, dieldrin, endrin, isodrin, methoxychlor, parathion, heptachlor, toxaphene, systox, and many others.

NEW FUNGICIDES

Cadmium compounds, new organic mercury materials, and complex mixtures of fungicidal materials for control of a broad range of pathogenic fungi.

NEW HERBICIDES

2,4-D is a little more than 10 years old but many new formulations and methods of use have evolved in the last 10 years.

Potassium cyanate, phenyl mercury compounds, methyl bromide, disodium methyl arsonate.

NEW TOOLS

Aeration equipment, vertical mowers, power sod cutters, improvements in older standard items of equipment.

Somewhat less definite but equally important are the contributions to a better understanding of many standard practices such as irrigation, fertilization, cultivation, physical characteristics of soils, and thatch control. This list of improvements is rather impressive when we remember that it represents only ten years of progress.

I am sure that any one of you today would feel that you were working under a severe handicap if any of these tools were taken away from you. You could not provide the excellent golf turf that is demanded today if you were 10 years behind times.

If we were to use February of 1926 as our reference point from which to measure progress, the developments would be even greater. The Bulletin of the USGA Green Section for 1926 contains the address by Dr. R. A. Oakley, made at a meeting of the Royal Canadian Golf Assn. in Toronto on February 6, 1926. The title of Dr. Oakley's paper was "Contributions to Greenkeeping by the Trained Investigator." Dr. Oakley listed two general ways in which a trained investigator might contribute to greenkeeping. These ways are "(1) by exposing mysterious and fake practices and materials and doing away with honest but erroneous practices, and (2) by making discoveries in new lines." Fortunately, nowadays we have few "mysterious and fake practices" which need exposing. We believe trained investigators are "making discoveries in new lines."

Dr. Oakley's paper also sheds some light on the status of pest control in 1926. I should like to read three paragraphs of his paper to you.

"Putting greens have their diseases and insect pests. Fortunately in Canada the notorious disease of putting greens called brown-patch is as yet not a serious problem. Southward in the United States it constitutes one of the most serious putting green menaces. Trained investigators are at work on it and already have done much in developing measures for its control.

These involve the use of resistant strains of grasses, special fungicides, fertilizers, and the adaptation of certain of the features of culture common to greenkeeping.

"In the fight against earthworms and insects which injure turf, the trained investigator has helped and promises greater help. The improvement of the carbon disulfid emulsion method of exterminating grubs has assisted very greatly in solving the problem created by the June beetle, Japanese beetle, and others of their kind. Within a few days there will be published the results of three years' experiments which point quite clearly to the possibility of rendering the soil of putting greens immune to the attacks of earthworms and grubs by mixing with it certain substances that are poisonous to these pests but are not harmful to the grasses. Lead arsenate and sodium silicofluoride have been used very successfully in experiments, but a large number of others will be tried out thoroughly. This line of investigation promises much."

Diseases, Pests Secondary

"Diseases and insect pests are serious enough, but after all are secondary as compared with weeds. When the earth was cursed to bring forth 'thorns and thistles,' chickweed, pearlwort, crab-grass, and a dozen other putting green weeds were included with them. The weed problem is always before the greenkeeper. It is his Nemesis. Thus far hand methods have been his heavy artillery in the fight against nearly all of the important putting green weeds. Relatively recently, however, careful investigations have pointed to another and simpler method of warfare. In brief, it involves the systematic and continuous use of such fertilizer as ammonium sulphate and ammonium phosphate, nitrogenous fertilizers which tend to produce an acid condition in the soil. The explanation seems to be relatively simple. The best northern putting green grasses — that is, the bents — are able to thrive on soils that are regarded as highly acid to a much greater degree than can the weeds that compete seriously with them on relatively alkaline soils. Fertilizing to produce acidity in the soil, then, is the greenkeeper's hope in his fight against weeds in the future — not all weeds probably, but the most troublesome ones. This means that he must avoid lime or similar alkaline substances which have been used extensively either as soil amendments or fertilizers in the past."

Of course, we believe now that the theory of producing acid soils to control weeds was a faulty one. I believe you will agree, however, that pest control is easier now than it was 30 years ago today.

Thus far, we have considered the contributions that research has made in the matter of tools for turf management. What of the future? Is research being done at the present time going to contribute to turf excellence in the future?

We believe the answer is YES. There are approximately ten times as many investigators in the field of turfgrass research today as there were ten years ago. About half of the state experiment stations have some turf investigations in progress. There is a greater awareness of the value of turf than ever before. The individual who owns a lawn or the public authority which maintains a park area has a stake in better turfgrass management. As greater pressure is brought to bear upon state institutions in behalf of turf research, more effort is going to be directed to the solution of turfgrass problems. Much information that is developed as a result of this demand will be directly usable on golf courses.

There can be little doubt that research will continue to produce building blocks of knowledge or tools whereby a turfgrass manager can do a better job. Whether these additional tools contribute to better turf for better golf depends entirely upon the golf course superintendent.

Coca-Cola Refreshes Jaycee Junior Golf Program

The Junior Chamber of Commerce 11th International Junior golf program will be launched this spring in cooperation with the bottlers of Coca-Cola throughout the country and National Golf Fund. This program, which each year gives more than 30,000 junior golfers an opportunity to compete, is conducted through community and state qualifying rounds by Jaycees.

The Fargo (N.D.), Jaycee chapter will be host to this year's international tournament which will bring a field of more than 200 junior golfers, in teams of four, from the 48 states, D.C., Hawaii, Canal Zone and Canada. This is the first Jaycee junior tournament to be played on a municipal course. The Fargo course is a championship layout, designed by Robert Bruce Harris.

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Pro Shop Safe Deposit

At the pro shop of Jackson Bradley at the River Oaks CC, Houston, Tex., in a most convenient location near the sales register, ball and accessory counter and telephone, is a "Ladies' Purse Rack."

Here the ladies can leave their



Jackson Bradley Pro Shop

purses while they're playing or practicing. It is a greatly appreciated service for the women players since women's lockerroom facilities are not especially handy — as is the case at most clubs.

Services for women members pay big returns in pro shop sales and publicity. Another storage service that women appreciate in a pro shop is a shoe storage rack where the ladies can change and store street or golf shoes. Orville Chapin, pro at Ft. Wayne (Ind.) CC, has such a rack in his shop and it's used, and appreciated.

Grau Out of Hospital

Fred V. Grau, noted turfgrass authority, spent ten days in a hospital repairing torn ligaments in his back. In leaving the Penn State conference he was shifting a bag of material in his car when he injured himself.

Fred missed the Purdue meeting for the first time in years. Got some needed rest in dry dock but quickly started writing and answering West Point Products' mail from bed.

Upon getting on his feet again he raced to New York to address the annual meeting of the Atlantic Seedsman's Assn.