



Charles K. Hallowell reporting on the results obtained by using the Aerifier on the Turf Gardens at the University of California, Los Angeles—the occasion being the Southern California Conference on Turf Culture.

Better Turf on the Way in Southern California

By CHARLES K. HALLOWELL

Editor's Note: Charles K. Hallowell was granted a leave of absence from his Agricultural Extension work in Philadelphia the first six months in 1950. During March, April and May he was associated with the College of Agriculture of the University of California at Los Angeles. This article relates some of his observations about turf in Southern California.

Hallowell will tell in the next issue of **GOLFDOM** about his visits to golf courses in the other sections of the United States.

A variety of good turf grasses, soil that shows much compaction, and great enthusiasm about having better turf on the part of those responsible for golf courses, characterizes the turf situation in Southern California. When one thinks of golf in California it is advisable to visualize that there are three distinct districts. They are the Northern California section, which includes San Francisco and is often referred to as the Bay Area, then the Monterey Peninsula with such famous courses as Pebble Beach and Cypress Point. The

third area is Southern California which includes that portion of the state from Santa Maria to San Diego along the coast and inland from Bakersfield to Mexico.

One is impressed with the combination of warm and cool season grasses found on all courses in Southern California. It is only where the temperatures go above 90° many days that the cool season grasses are sparse. This combination of grasses insures good "lies" of the ball on the fairway and is what those in the Eastern United States would like on their courses. This desire is especially true in the area along the eastern seaboard from New York City south to Richmond, Virginia, where crabgrass thrives in the summer months.

Bents, bluegrasses, fescues, red top and ryegrasses are all found in the fairways growing naturally with bermuda grass. The latter goes off color each December when it takes a rest and when lower temperatures retard it but by March new growth starts. However, its intensive growing season is July, August and September. Natural green color of turf may be maintained throughout the entire year by timely and proper applications of nitrogen fertilizer prior to the time when the bermuda grass loses its color.

There is a lack of information on the fertilization of the fairway grasses as to the amount to use and the time to apply. There is evidence that much fundamental information is available in the College of Agriculture of the University of California about fertilizing grasses. With those fundamental facts a series of fertilizer plots on fairways on a number of golf courses would soon produce data that would be helpful to all golf course superintendents.

Grasses found on roughs are mostly the same that grow in the fairways. Sheep fescue, popular in the roughs in Eastern United States, is growing in a few spots at Lakeside Country Club. There is an effort being made to determine why sheep fescue grass is not more widely grown on golf course roughs. Alta fescue is showing promise as an ideal grass for the roughs. It seems to have the ability to produce a turf with limited watering. This being due to the deep root system of this grass. Alta fescue combines with the bermuda grass to make an ideal turf for golf tees and for athletic fields.

Bent Grasses Introduced Late

Bent grasses were introduced for putting greens in Southern California much later than in Eastern United States but when Seaside bent was found practical for turf for putting greens it was a definite advancement. The golf folks are now finding the proven creeping bents grown from stolons produce an even better putting surface than Seaside. The greens built in recent years at Mission Valley under the guidance of L. M. Hughes are of an excellent strain of Washington bent, in fact, the same as used on the new 36 hole course in Mexico City. The combination of Arlington, Congressional and Collins creeping bents shows great promise. These bents growing as individual strains for two years and in combination for one year at the Turf Gardens of the University of California, Los Angeles, catch the eye of all golf folks who see them. These are three of the strains of grasses sent to California by the Green Section of the United States Golf Association.

The success of William Glover of Fairfax, Virginia, with these three grasses, which was reported at the National Turf Conference in Boston and in the March issue of *GOLFDOM*, inspired and encouraged many Southern California turf enthusiasts to push the development of Arlington, Congressional and Collins. There are commercial nurseries now growing these grasses in anticipation of the demand that seems likely for these strains. A deeper root system and the ability to produce a dense turf, sufficient to withstand invasion of poa annua, are two reasons for this combination's superi-

ority to Seaside bent. This turf produces less grain on a putting surface when cut at one-quarter of an inch or less than other putting green grasses found in Southern California. Disease is seldom found on these grasses.

U-3 bermuda, introduced to Southern California two years ago, shows real promise due to its even texture and ability to retain its color throughout the year. This grass can recover rapidly when injured. It thrives on close cutting and heavy nitrogen feeding. U-3 bermuda has found its place in other than golf turf, being satisfactory for athletic fields and when properly maintained produces an ideal lawn.

Have Weed Control Specialists

Where turf grasses grow rapidly weeds do the same and that is evident in Southern California. Healthy, dense turf is helpful in reducing the number of weeds. Dichondra, grown as a lawn turf in the Los Angeles section, is a pest when growing in golf greens or fairway turf. Light applications of 2, 4-D show promise in removing this weed. Dallis grass has appeared in fairways on a few courses. It grows vigorously and is not removed by heavy applications of sulphate of ammonia as in other sections of the United States. Spraying with special oils seems to be the only method of eliminating Dallis grass. Then it is necessary to reseed the area where the weed was removed.

Kikiyu is one weed thriving on golf courses that to date has failed to yield to various herbicides. Dr. A. S. Crafts of the University of California has suggested maleic hydrazide as the chemical that might check this vigorous weed. First applications were made in June.

Turf folks having weed problems in California are indeed fortunate in having two of the country's leading specialists in weed control—Dr. Wilfred W. Robbins and Dr. A. S. Crafts, both Botanists at the College of Agriculture at Davis. They are in a position to give assistance with the elimination of any unusual weeds in turf.

The golf course soils are low in organic matter but produce a good turf rapidly when nitrogen fertilizer is applied. The importance of adding phosphorous prior to establishing new turf is indicated in a series of new plots started the first part of 1950 at the Turf Gardens. Surely two of the problems to which scientific investigators may make a contribution is to determine methods of establishing a turf with a deeper root system and a reduction of soil compaction.

Primarily the reduction of the soil compaction includes allowing more air to enter the soil and judicious use of water. It is noticeable that compaction is greater near

(Continued on page 44)

station on the physical condition of golf green soils and its effect on the quality of greens; one by Marvin Ferguson, USGA Green Section, on effects of different levels of six nutrient elements upon the growth and seed production of *zoysia japonica* Steud; one by Ethan C. Holt, Texas Agricultural Experiment station on variation in spreading rate and growth characteristics of creeping bentgrass seedlings; and one by Don Likes, Indiana Agricultural Experiment station, on the effect of height of cut and irrigation on fairway turf grasses.

BETTER TURF ON WAY

(Continued from page 32)

sprinkler heads and on greens that have been overwatered. The solution of the reduction of soil compaction and the working out of a well managed irrigation program will both reduce the maintenance costs and be helpful in improving the turf.

Reducing Soil Compaction

The mechanical cultivation of the soil to reduce compaction shows possibilities in Southern California as in other sections of the United States. Four different types of machines were found in operation in Southern California during March, April and May, when the writer was visiting golf courses. All were showing to advantage since after their action there was a rapid increase in root growth and irrigation was reduced. The depth of the tool and its cultivation of the soil were two factors that determined the effectiveness of the machines used.

Striking examples of reduction of soil compaction and loosening of the soil were at the Victoria Country Club at Riverside, and at the San Diego Country Club. At the former twenty days after aerifying, conditions changed enabling golfers to hold pitch shots to the greens. Prior to the aerifying they reported high shots failed to stick. The growth of the turf on greens at the San Diego Country Club changed from fair to good in a few weeks after the mechanical aeration of the greens. The stimulation of root growth from aerifying is evidently the reason for the favorable change in turf.

The heavy soil that readily compacts, combines poorly with organic matter material and sand to make the desired medium for growing putting green turf. A series of soil amendment plots have been started at the Turf Gardens, therefore with careful study as to water penetration, depth of roots and clippings removed, facts will be secured helpful to all who are constructing new greens.

The rainfall in Southern California is variable with an annual average of seven to fourteen inches. Most of this amount falls from October to March inclusive. The

turf folks want to know every possible maintenance practice to enable the turf to get the greatest benefit from the seasonal rainfall. There are areas where the water used for irrigation purposes has a high sodium content. Means of moving the salts through the soil before they retard root growth is another of the problems on which facts are desired. It is in Southern California that means of producing good turf with less water is a paramount problem.

Golf is played daily twelve months of the year in Southern California. Eighteen hole public golf courses report 100,000 rounds of golf annually. The demand for more golf courses seems evident and facts will be needed for those who will be developing new golf courses. It is imperative that the present turf program move ahead and be ready for both the development of new courses and the maintenance of courses having heavy play.

Push Turf Study

The spirit to get better turf for golfers has caught fire in Southern California. The idea of having the University of California study fundamental problems in turf production originated with the Green-keeping Superintendents Association of Southern California. This program became realistic when the directors of the Southern California Golf Association threw their weight behind the project. The directors raised funds and secured the interest of other groups wanting better turf. The formation of a Turf Advisory Committee was a natural development. Membership consists of representatives of cemeteries, athletic fields, parks and numerous allied interests. C. C. Simpson serves as Chairman in addition to his duties as Chairman of the Greens Committee of the Los Angeles Country Club. The Secretary is F. W. Roewekamp of the Department of Parks and Recreation of the City of Los Angeles.

Funds raised are turned over to the University of California to develop and maintain the Turf Gardens at the Horticulture Center at 300 Veteran Avenue, Los Angeles. The selection of the site is ideal for the college workers and a number of interested turf folks. There are eight golf courses located within six miles of these plots. Park officials, lawn owners and representatives of commercial concerns connected with turf visit the gardens daily. It was at the gardens where the two conferences held, one last October and the second in May, had their opening sessions. The Superintendents have planned an all day meeting at the plots this fall and the recently organized Athletic Field Superintendents will meet there soon.

The Turf Gardens were laid out and developed by Dr. V. T. Stoutemyer, head

of Ornamental Horticulture of the University of California, Los Angeles, and his assistant, John Gallagher, Jr., under the guidance of the Turf Advisory Committee. Dean A. W. Hodgson, when opening the First Annual Field Day on Turf Culture, encouraged the group present by stating that within two years the College of Agriculture would plan their budget to maintain the Turf Gardens and inaugurate a turf research program. There is real evidence that as the College supports and assumes full responsibility for the studies of turf grasses and soil there will be funds coming from interested parties for special research studies in the nature of fellowships.

Financial support so far has come from the thirty-four clubs composing the Southern California Golf Association, most of the sixteen golf clubs organized as the Public Links Golf Association, County and City park groups, cemetery interests and commercial organizations. All this financial support is stimulating and inspiring to the College of Agriculture to endeavor to develop a program that will serve turf interests.

Those who attended the two turf conferences held in May, 1950 at Los Angeles and Berkeley asked the University of California to become active in both turf research and extension. These two conferences did arouse the interest of a number of the soil men on the staff of the College of Agriculture. They soon will be bringing forth facts that will be helpful in the solving of turf problems. An Extension Turf Specialist would have the opportunity to correlate agricultural facts from the College applicable to turf and information developed by the Green Section of the United States Golf Association and other Agricultural Experiment Stations conducting turf research programs. That Turf Extension Specialist would find the interest of all green chairmen, greenkeeping superintendents and other people wanting facts that would help them to produce better turf. This interest was evident in all groups the writer was privileged to meet during the period a turf survey was made for the University of California in conjunction with the Southern California Golf Association and directed by the Turf Advisory Committee.

The opportunity to see and serve those interested in better turf in Southern California was enjoyable and, it is hoped, beneficial to all. There will always be turf problems to solve but after being in Southern California three months one is sure these problems will be solved as they appear. This will be due to the aggressiveness and sound judgment of the Turf Advisory Committee. Yes, better turf is on the way in Southern California.

USGA announced during National Amateur at Minneapolis its 1952 National Open would be held at Northwood Club, Dallas, Tex., and the 1952 National Amateur at Seattle (Wash.) GC.

1951 Open will be played at Oakland Hills CC, Detroit, Mich., and 1951 National Amateur at Saucon Valley CC, Bethlehem, Pa.

HOW GOLF FIGURES

(Continued from page 27)

time program than they were at the start of World War II. McCoy summarizes:

"The majority of clubs have replaced their most obsolete equipment and have, or are trying, to build up a supply of parts which are not as readily available now as at the start of War II. Some are trying to get new equipment now. Clubs have tried to improve course conditions through drainage, aerification, fertilizing, changing to better strains of grass and so forth. There will undoubtedly be some stockpiling of fungicides and fertilizers.

"In the final analysis what any individual club can do will depend upon finances and supplies available but more important will be the resourcefulness of the various grounds committees and their superintendents."

W. C. (Bill) Gordon, pro at Tam O' Shanter CC, Chicago and pres., Illinois PGA, says he thinks the pros will be able to solve their possible wartime problems easier than the greenkeepers. Bill's opinion:

"The situation with pro shop merchandise now is more the result of a buying stampede than of any serious or threatening lack of merchandise. The manufacturers' and distributors' stocks have been cleaned out far more than is usual even at this time of the year when golf business experiences a seasonal reduction. The difference represents stock that has been bought up by members, and possibly in plenty of cases, to the extent that those members won't buy at a normal rate next year.

"The rationing that has been done by pros and manufacturers to control the buying stampede and hoarding I believe has pretty well cared for the situation so that there'll be balls enough to allow all the golf that can be properly fitted into the wartime needs of recreation. If the comparatively minor rubber and steel requirements of the golf industry are cut, say 10% or 20%, conservative selling and wise control will enable pros to care for the players' needs, although not to the extent possible under normal conditions. We also must bear in mind that the game is growing and whatever cuts there are in