Mulch Use Pays in Modern Fine Turf Production

By CHARLES W. PARKER

While scientific research and development of more efficient methods have accounted for a vast advance in production and maintenance of fine golf turf, at the same time sound and simple cultural practices of the past have almost disappeared. The use of mulch for protection and conservation of moisture of seedings is one of the practices of the past that has been allowed to fall into discard.

When the availability of water on golf courses was limited to greens the use of mulch when seeding tees, banks of traps and similar areas was common practice. Today though over-all availability of water on golf courses is quite general the shortage of labor and the cost of labor hours dictate reviving any sound cultural practice that will help to hold down unit cost either by reducing hand operations or by releasing labor hours for other jobs.

For many years hay, straw or similar materials have been used to mulch the initial seeding of cut and filled slopes along the highways and on the more recent parkway and turnpike developments the end results of seeding the dividing strips and the shoulders have been definitely better because of mulching.

Penn State has conducted experiments on the use of mulch for seedings on cut and filled slopes and other highway conditions and favors the use of mulching material carrying the seed that will produce the desired ground cover. There are many "ifs" in the application of this idea to field conditions. While it may sound interesting it is doubtful if the idea of making the mulch produce the seed can be successfully applied in the development of fine lawn or sports turf.

Having observed and then practiced mulching in producing ground covers under various conditions the opportunity came a few years ago to bring mulching over into the fine turf field. Time and again the results more than justified the practice.

Save Labor; Increase Germination

Today; when the labor problem is so acute, not only because of tight supply but also because, in general, the product of present day labor is low both in quality and amount any cultural practice that will reduce the number of labor hours required and aid materially in securing better results warrants serious consideration by everyone who is charged with the production and maintenance of fine turf.

More and more the evidence is pointing toward the theory that the less cover on fine turf seeding the better germination will be. This being the case, and there are no valid reasons to question it, mulching becomes a necessity. Under this method, when the seed bed has been prepared the seed is broadcast either by hand or mechanically with particular care being used to broadcast as evenly as is possible. Hand raking, brushing or whatever method is usually favored to "work the seed in" is omitted, the seed is pressed lightly into the surface and the seeding operation is considered to have been finished.

At this point mulch will take over. Cover the area with two to three inches of light dry mulch and walk away from the job satisfied that it will require a minimum of attention until germination and a strong seedling growth has become established.

At any time of the year that soil can be worked seeding plus mulching may be done with no concern over the end results. The umbrella of mulch will conserve moisture so that the fussy and tedious hand watering operations will not be needed. It may be said at this point that if it is felt that, at seeding time, soil moisture is low and there is some doubt about depending on rainfall one watering on top of the mulch will satisfy moisture requirements. This is easily accomplished and working over the mulch cover reduces mechanical damage from careless or inexperienced workmanship to the absolute minimum.

Application Fool-proof

On large areas spread the mulch and wait until nature provides the required conditions for germination. Where a late season seeding has been made or where a very early Spring seeding has been done in the hope of getting the jump on the season, only to have a sulky nature upset the plans, there will be no need for worry or concern. Under the umbrella of mulch the seed will sit quite happy and content until nature smiles again and germination and growth conditions once more prevail.

Application of mulching material calls for no particular skill or interest on the part of laborers. Establish a depth of two to three inches of light dry material and let the men cover the area, always working from the edges over spread material. The error will be too thin more often than too thick. In the case of light, dry, long fibered material the problem of too thick an application will not be serious.

Where old or heavy material that will soak up water has had to be used it will be necessary to check back and lighten the mulch where it has become matted. This will be particularly important once germination has started. Where a ground cover is being established the mulch is often allowed to remain and disintegrate. This method is justified on banks and slopes where coarser grasses are being used and where the end result is ground cover. For lawns and sports turf mulching should be removed as soon as a strong seedling growth has become established.

Generally mulching is removed too soon rather than being let stay on too long. When the seedling grass has reached the point in growth where the first cutting should be made is, the right time to remove the mulch. No damage will result from raking off the mulch and while there will be some bleaching no harm will have been done and a few days exposure to light will restore any bleached grass to a healthy color. From that point on the cultural practices will be the same as for any new grass.

There seem to be no sound reasons why mulching should not be standard practice in developing turf for golf greens. The advantages are many, not the least being the control of seed wash and soil erosion from the heavy shower that almost always seems to come within a few days after seeding.

While no observations have been made on the use of mulch where the stoloniferous planting method is used there do not appear to be any valid objections. Surely where moisture control is as important as it is in this method of turf development mulching cannot be anything but a definite aid.

Too many times disappointing results have been obtained from stoloniferous plantings because the moisture level has not been kept constant. Either because of lack of understanding or because of disinterested workmanship watering was not done properly and immediate or unchecked growth was not maintained. Under these conditions the quality of the stolons is unfairly blamed, and as a corrective measure seed is introduced; thereby discarding the original justification for stoloniferous planting. Taking a less critical view and granting that stolons may require interim watering it must be obvious that this watering will be more

easily accomplished with a carpet of mulch to work over.

For the finer grades of turf where banks and slopes are too steep to hold mulch it is doubtful if the use of netting or soil anchoring are justified and it will be the better practice to sod.

In special cases where a soil binder or a ground cover is the main purpose of the seeding mulch can be anchored with a light covering of soil. In this case the coarser grasses will be used and the mulch will not be removed but will eventually disintegrate in place. The advocates of this method for over-all use like to make large claims for the value of rotted mulch as a source of plant food and soil conditioner. It does not appear that these claims have any real value.

"Refinements" in Application

The application of mulch does call for hand labor but it is not a fussy job and can and should be accomplished quite readily. A "refinement" of hand application is being used where the mulching material is put through an ensilage cutter and is blown onto the seeded area. On roadside seedings this method seems to produce satisfactory results though the fibres are chopped quite finely and make a cover more tight than appears desirable. Here, of course, the mulch will not be removed.

Some washing on relatively mild slopes was observed where finely chopped mulch was used and it may have been coincidence that on one seeding of division strip and shoulders the eventual ground cover was predominantly clover. Another "refinement" recently observed was where finely chopped mulch had been covered with a solid mat of soil. This was being done on relatively level areas as well as on slopes. Wherever possible the soil was being dumped in piles and spread with a grader. It will be interesting to observe the end results of this method.

These "refinements" have been noted here not because they have any place in the lawn or sports turf picture but as a mild warning. Today's thinking dictates that any job that can be done mechanically rather than by hand is being accomplished most efficiently. Unfortunately those of us who have to take the results of this unrestrained, "efficient" construction know all too well and to our sorrow what we are up against. The problems of fine turf maintenance have been multiplied and in far too many instances definite limitations on maintaining high quality turf have been built into an area because of these "highly efficient" and "upto-date" construction methods.

Mulching material can be any long fibered hay, straw or similar material that can be most readily obtained. Many golf courses have marginal areas from which satisfactory mulching material can be harvested. Often a lot of baled hay or straw has been broken from the bales in shipment or is of poor quality and can be purchased at a low price. Then there are local sources where salt hay, shore line thatch or cranberry bog trimmings can be picked up at low cost. The importation of first quality baled hay, straw or salt hay is not suggested unless there are no other materials available and even then it is doubtful if the cost will be justified excepting possibly for use on greens.

A few minutes balancing the cost of mulching material plus the advantages from its use, against the cost of hand watering, possible re-seeding and washout damage repair will determine how much can be justified for purchasing mulching material.

There are a number of collateral advantages gained from the use of mulch. It may not be practically possible to translate the advantages into terms of dollars and cents saved but they should be considered and credited against mulching costs. Mulch is not a one use material. When removed from an area the mulch should be stacked for future use. It becomes unfit for mulching only when it has broken down to the extent that it will flatten down into a tight blanket. When fairway areas have to be repaired the mulch will give real protection against mechanical damage as well as washout. Foot traffic will do no serious harm and fairway units may be run over the mulched area with little disturbance to the mulch or the ground underneath.

When the subject of mulching for fine turf areas is introduced the first and most loudly voiced objection is that of weed contamination. Weed contamination is considered as being any plant seeded into an area that is not wanted in the eventual turf. It can be said here that nurse grasses should be considered to be weeds and by the use of mulch the need for nurse grasses, if there is such a need, is definitely ruled out.

Over a period of years I have observed only one case of weed contamination from mulch. In this case on a large area where a fairway had been widened then seeded and mulched with the hay from a pasture mix containing a high percentage of rye, fairly large areas developed the first year into what appeared to be stands of pure rye. As the season progressed the regular cuttings at fairway height apparently discouraged the rye and the permanent grasses began to appear. It had been assumed that the rye had dominated the permanent grasses but this proved to be



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manent grasses have taken over completely.

In no other instances, over a period of years, where mulching was practiced on seedings for fairways, rough, tees and nursery areas has any weed contamination been observed that could be charged to the mulching materials used.

Another objection is the fire hazard. It must be admitted that there is the possibility of accidental firing of mulch but it appears to be highly improbable. This has been demonstrated repeatedly where mulch has been used around parking areas, along walks into buildings and access paths in recreation areas where the general public has gone back and forth in large numbers. As yet not one case of accidental firing has been noted.

Let no one make the mistake of thinking that the practice of mulching seeded areas is advocated as being anything but a very valuable aid toward securing maximum germination and a strong seedling stand. Mulching will not correct or ease any of the errors of construction, poorly prepared seed bed or the unfortunate choice of seed. It will be a real mistake, however, not to give serious consideration to the use of mulch by anyone who has seeding to do.

"Boy Next Door" Junior Promotion Movie Released

Twenty prints of the U.S. Junior Chamber of Commerce golf film, "The Boy Next Door," are now being shown around the country. The film was produced with the cooperation of the National Golf Foundation and is a 16mm, color, sound production available to country clubs, golf associations, civic groups, etc., at no charge from the U. S. Junior Chamber of Commerce sports offices at 209 S. State Street, Chicago 4, Illinois. It depicts the story of the Jaycee junior golf program and has a running time of 22 minutes. Interested groups should allow 15 days advance notice in requests for prints.

Club Asks "What Are Green Committee Duties?"

A Michigan club official asks "what are the duties of a green committee? How far does the committee's authority extend in alteration of trapping?"

In trying to get the answer GOLFDOM found such wide variation in green committee responsibilities and authority at different clubs and such a vague idea of this committee's duties its' evident that the committee's function needs examination by club officials and course supts.

GOLFDOM asks its club president, green chairman and superintendent readers to write us what they think the duties of a green committee should be.



TURF TOUR Plugs from the Turf Conferences By TOM MASCARO

PULLMAN, WASH.

The Fifth Annual Washington State Turf Conference, November 6-7th was highly successful. Much credit goes to Dr. Alvin Law who engineered the conference. Ivan Lee, Pres. of the Turf Assn., is doing an energetic job of promotion. The program at Pullman was varied and covered golf turf, athletic field and other specialized turf areas . . Bob Stiener, Assistant Coach of Athletics for the Washington Huskies, gave the lowdown on athletic field turf ... Charlie Wilson, Extension Agronomist for the USGA Green Section, did a fine job of pinchhitting in the absence of Dr. Fred V. Grau ... Portland superintendents had a good turnout at this conference.

OAKLAND, CALIF.

The Northern California Turf Conference assembled at the Municipal Auditorium in Oakland. 124 attended; golf course superintendents, cemetery, park, school, landscape, army and athletic field men ... Norvell Gillespie, Garden Editor of the Los Angeles Examiner, served as chairman for one of the sessions. He introduced Harry Schoth and his cigar. Harry reported on developments with turf grasses at the Corvallis experiment station ... Behind-the-scenes work was done by Ellis Van Gorder, Supt. of Stanford University and Elmer Border, Supt. at Orinda CC.

Dr. W. A. Harvey covered weed control. Bill uses chemical control of weeds on one half of his lawn — his wife takes care of the other half . . Charlie Wilson again substituted for Dr. Grau . . Dr. Leonard Carrier, Division of Landscape Gardening, will help Dr. Bob Hagan with the plots of Merion bluegrass at the Agricultural Experiment Station at Davis. Studies will be made to determine rates of irrigation

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for turf grasses on the west coast. The findings of Hagan and Carrier should be applicable with some modification to turf irrigation all over the world . . . Dr. Mc-Elroy, Director of Extension Activities, University of California at Berkeley, is coordinating the turf work for the state of California . . . Real support is being given to the Northern California Turf Conference by the City of Oakland. Mr. Mott, Supt. of Parks for Oakland, is to be congratulated for his interest in turf work . . . Commercial interests have gone a long way in supporting the program too.

LOS ANGELES, CALIF.

The Southern California Turf Conference was held November 14th at the turf plots in Los Angeles on the ornamental horticultural grounds of UCLA . . . Conference was headed up by Dr. Stoutemyer . . . Rancho GC, a city course, was host for the afternoon session. Bill Johnson, Pres. of the National Golf Course Superintendents Assn., is in charge there.

Under the able direction of Dr. Stoutemyer, the turf plots and the turf program have made marked progress ... John Gallagher has done an outstanding job in managing the plots and helping in extension work. John is leaving UCLA to complete his college training at Pennsylvania State College. He will begin his studies in February and will be a resident of Pennsylvania for the next three years ... Dr. O. R. Lunt, Division of Irrigation, UCLA, is heading up studies to determine the usefulness of soil amendments for soils under turf... Another California, first is an Athletic Field group. The organization is going into its second year of existence . . . Carl Bloomfield, Supt. of the Rose Bowl, is in his second year of a good all-round turf management program.

SOUTHERN CALIFORNIA

Bill Beresford, Supt., Los Angeles CC and his teammate, Colin C. Simpson, green chmn. of the club, have completed a series of large scale tests in crabgrass control. The course is scheduled for complete renovation. Sodium arsenite will be used... Bill also has completed a series of tests on crabgrass control with various mixtures of potassium cyanate and Milorganite. The combination shows promise for home lawns ... Zaki Mahdi, working at UCLA, has come up with some interesting information on the vegetative planting of U-3 Bermuda plugs. Two-inch plugs and 4-inch plugs planted on equal centers spread at the same rate.

PHOENIX, ARIZ.

Turf men here had a one day meeting November 16th . . . O. J. Noer conducted the whirl-wind tour through the Arizona CC, Phoenix CC and the Municipal Golf Course of Phoenix. Time was short but the fellows got a lot of helpful information from O. J.

1952 TURF CONFERENCES

- Jan. 8-9—Turf Conference. Mid-Atlantic Association of Golf Course Superintendents. Lord Baltimore Hotel, Baltimore, Md.
- Jan. 21-25—One-week Course in Turf Management, Rutgers University, New Brunswick, N. J.
- Feb. 3-8—23rd Annual Turf Conference and Show of Golf Course Superintendents Association of America, Neil House, Columbus, Ohio.
- Feb. 18-21 Turf Conference. The Pennsylvania State College, State College, Pa.
- Feb. 26-28—5th Cornell Turf Conference, Cornell University, Ithaca, N. Y.
- Mar. 3-6—Turf Conference. Midwest Regional Turf Foundation and Purdue University, West Lafayette, Ind.
- Mar. 10-12—18th Annual Superintendents and Turf Assn. Short Course, Iowa State College, Ames.
- Mar. 11—Lawn and Turf Conference, Campbell Hall, Ohio State University, Columbus.
- University, Columbus. Mar. 13-14—Univ. of Massachusetts Annual Turf Conference, Amherst.
- Mar. 13-14-21st Annual Turf Conference, Michigan State College, East Lansing.
- April 23-24—Southeastern Turf Conference, USDA Experiment Station, Tifton, Ga.
- June 9—Central Plains Turf Foundation Annual Field Day, Boys Town, Nebraska.

Southern Cal. Turf Meet Draws Record Attendance

Southern California's fourth turf conference had a record attendance of almost 300 for the sessions at the UCLA campus test plots and at Rancho course. Dr. V. T. Stoutemyer, professor of floriculture and ornamental horticulture at University of California, Los Angeles, points out that the wide range of interests of those attending strongly confirmed the judgment of the UCLA, University of California Extension, the course superintendents, green-chairmen and other club officials when their collaboration got the conference established. Park supts., nurserymen, landscape architects, seedsmen, campus and athletic field caretakers and others outside of exclusively golf interests, attended.

The program at UCLA included discussions of experiments on turf diseases by Prof. Pierre A. Miller, Div. of Plant Pathology, and of trials of new insecticides by Dr. Roland N. Jefferson, Div. of Entomology. O. J. Noer, Agronomist of the Milwaukee Sewerage Commission, demonstrated methods of tissue testing of grasses. John E. Gallagher, Div. of Floriculture and Ornamental Horticulture, who has supervised the turf plots since their inception, discussed chemical crabgrass controls as worked out in the National Coordinated Crabgrass Trials. All of the chemicals tested, including sodium arsenite, potassium cyanate, and phenyl mercuric acetate, were effective, but each has particular values for special situations.

One demonstration by Gallagher which attracted particular attention was the use of methyl bromide, to which a little chloropicrin had been added as a warning agent, for quick eradication of existing turf by fumigation. Re-seeding can be done a day after the termination of the fumigation, and the group was shown a plot of the new Penn State Polycross bentgrass which had been seeded in fumigated turf without any soil preparation whatever. Fumigation has great possibilities for fighting encroachments of Bermudagrass on bentgrass greens, and for the eradication of grasses difficult to control by other means.

Colin C. Simpson, chmn., Research Advisory Committee, opened the session at Rancho clubhouse by introducing the members of the Research Advisory Committee. Charles Wilson, Extension Agronomist of the USGA Green Section, described the development of the National Coordinated Turf Program, and showed many slides illustrating recent progress in the field of turf culture.

Dr. O. R. Lunt, Div. of Irrigation and Soils, discussed the subject of soil amendments and their relation to the preparation of soils. He discussed various organic compounds, soluble silicates and certain trivalent compounds which offer some promise of improving soil structure, although they have not yet been tested under turf conditions. Noer discussed turf management and presented slides illustrating important point in turf culture. Other slides on the same subject were shown by Tom Mascaro of West Point, Pa.

Discussion of turf culture and turf research in the British Isles, as well as in several countries of Continental Europe, was presented by Verne Wickham of the Los Angeles County Dept. of Recreation and Parks. Wickham described the elaborate consulting services which have been built up in the British Isles at the St. Ives Station. However, in equipment and methods of management, Wickham be-



lieved U. S. is ahead in most respects. The conference concluded with a ban-

quet at the Rancho clubhouse, followed by a panel discussion in charge of Noer. Written questions were submitted from the floor and were handled by speakers on the conference program and by visiting staff members, Dr. Robert Hagan from the Davis campus, and John J. McElroy of the Agricultural Extension Service at Berkeley.

Pro Shop Planning Book Issued by Foundation

"Planning the Professional's Shop" is the latest book issued by the National Golf Foundation in cooperation with the Educational Committee of the PGA and GOLFDOM. The first book "Advertising the Pro—His Shop and Services" was published in 1950.

The pro shop planning book is primarily prepared for service to club members and fee course players, club officials and architects rather than bluntly accented on the increased pro profits theme. If the player has more convenient and more attractive pro shop facilities as a service and facilities are such that the pro can operate the shop properly, increased sales volume is inevitable.

The book, abundantly illustrated with pro shop interior and exterior views and floor plans, gives considerable practical



information on factors that govern pro shop design; location, floor plan, club storage room, back-of-shop layout, lighting, display fixtures, decoration.

It is available from National Golf Foundation, 407 S. Dearborn st., Chicago 5, Ill. for \$1.50 a copy.

M. G. (Scotty) Fessenden Dies at Chicago



Maynard Gay (Scotty) Fessenden, 59, died Jan. 1 at Mercy hospital, Chicago. He had been seriously ill for more than a year but with characteristic courage, will-power and cheerfulness concealed his condition from his many friends. His last session in a hospital was less than a week.

Fessenden was one of the most widely known and beloved golf enthusiasts. His services to golfers and golf were many and varied and given with generous expenditure of his time, energy, business judgment and money.

When tournament sponsors expressed intention to cancel tournaments in 1942, Fessenden, a World War I combat veteran, offered to underwrite tournament losses and with the late L. B. Icely kept the wartime tournament schedule going with its millions of dollars of income for wartime causes and rich purses to pros. He also was an energetic promoter of home club pros' business interests.

Fessenden served as pres., Chicago District GA, Western GA and Bob O'Link CC and as chmn., Advisory Committee of the PGA, heading in each case notably energetic and constructive administrations. He revitalized the Western's Evans Caddie Scholarship financing and got Bing Crosby and Bob Hope, two of his golfing pals, and leading men and women pros who were close friends of his to contribute their services to making the Western's "Honor Caddie" movie. He was chosen by the Golf Writers' Assn., their "Man of the Year" for 1947.

He was a member of Bob O'Link, Oak Park, Flossmoor, Glen Oak, Indian Creek, Chicago Athletic, Lake Shore and other



clubs, and of the Masonic Order and the American Legion.

He was treas., Ace Carton Corp., Chicago, and Ace Folding Box Co., White Pigeon, Mich., and for two terms, pres., Folding Paper Box Assn. of America.

Scotty is survived by his mother, Mrs. Anna Julia Fessenden; his widow, Talia; his son, Maynard G., Jr., a daughter, Gay Mesta; his brothers Ace and Walter and a sister, Mrs. Charlotte Petersen.

His passing is deeply lamented by thousands who counted his friendship one of their rich and delightful treasures.

6th Texas Turf Conference At Texas A. & M., Dec. 12-14

The Sixth Annual Texas Turf Conference was held on the campus of the A. & M. College of Texas, Dec. 12, 13, 14, 1951, with 70 turf men from all parts of the state participating. The attendants represented golf course, park, cemetery, athletic field and airfield interests. The Conference was sponsored jointly by the Texas Turf Association and the College.

Dr. R. D. Lewis, Director of the Texas Agri. Exp. Station, welcomed the turf men. Dr. Lewis in reviewing the progress of the Turf Research Program since the initial conference in 1947 pointed out that good turf is impossible without objective type investigations. He closed by emphasizing that turf is second only to food in forming the most common link between town and country.

Dr. E. C. Holt, in charge of the grass improvement program for the college, talked on the strain evaluation phase of developing a new turf grass. Grass strains differ greatly in color, texture, disease and drought resistance, ability to compete with weeds, rapidity of growth and tolerance to chemicals. The fact that strains superior in one area may not be superior in another location was emphasized.

A. W. Crain, Pasture Extension Specialist for the college, talked on the effect of climate on turf grasses. The temperature relations between cool and warm season grasses were discussed. Soil type, son color, direction of slope and amount of soil water are among the factors influencing soil temperature.

"How Management of Turf Influences Disease Incidence" was the title of a talk given by Dr. O. J. Noer, eminent turf specialist with the Milwaukee Sewerage Commission. The best of turf fungicides may be condemned as inadequate because



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IMPROVING CENTRAL PLAINS GOLF

Second Annual conference of Central Plains Turf Foundation, at Kansas State College, Manhattan, Ks., assembled experts from Kansas, Western Missouri and neighboring areas to whom tough problems of turf maintenance are matters of course. In that area if it isn't flood, it's drought with blistering temperatures, or sweltering humidity. What the tie-up of course supts., research experts and supply men have been able to do for courses in this territory is a marvel, and can be partially explained to club officials and members if they'd ever sit in on the Central Plains sessions.

of improper management. Proper watering, fertilization and aeration as well as the selection of the proper species or strain are important factors in the prevention and control of disease. There is no substitute for the "man" in management. A common grass in good hands will produce better turf than a good grass in poor hands.

Noer and Tom Mascaro, of the West Point Lawn Products Company gave a discussion of turf in the United States, Canada and Mexico, illustrated with color slides, in an evening program.

Physical Soil Requirements

Dr. J. B. Page, Professor at Texas A. & M., discussed the physical soil requirements for growth of turf grasses. Plants require support, nutrition, temper-ature, water and oxygen from the soil. Porosity, either textural or structural, governs the water and oxygen supply of the soil. Page stated that the proportion of pore space available for air and water may be definitely influenced by management practices. Compaction reduces pore space and hence the oxygen supply available for plant roots. Under heavy compacted and water logged conditions turf grasses may display symptoms of oxygen deficiency which may be mistakenly diagnosed as wilting from lack of water. The addition of more water will intensify rather than correct this situation according to Page.

Tom Mascaro using colored slides demonstrated the practical benefits of mechanical aeration as a means of alleviating compaction, thatching and shallow roots. The necessity of using the proper type of aerating equipment in order to obtain the necessary cultivating action was very effectively demonstrated.

Dr. J. F. Fudge, State Chemist, gave some fundamental information about fertilizers. Such information as fertilizer grades and ratios and the effect of nitrogen, phosphorous, and potash on turf grasses was discussed. The group was pleased to learn that improvement in fertilizer processing has resulted in the production of materials that will not "set-up" as a result of long periods of storage. M. K. Thornton, in charge of the Soil Testing Service, discussed the procuring of soil samples and interpretation of soil analyses.

Dr. Fred V. Grau, Director, USGA Green Section, was unable to attend the conference. Dr. Grau's interest in better turf for Texas was expressed through his remarks on aerification, watering, fertilizing and new strains which were read by Dr. Jim Watson in his absence. Dr. Grau suggests the establishment of a Turf Advisory Committee to serve as a link between research and the field. Such a committee is invaluable both in planning research and in obtaining support forresearch.

J. I. McGregor, Agronomist, with Flying Training Air Force, Waco, Texas, and V. L. Rouze, Superintendent, Mt. Olivet Cemetery, Ft. Worth, Texas, discussed problems that arise when attempting to develop and maintain good turf on airfields and cemeteries, respectively. Dan Dudley of the Texas State Department of Agriculture explained the new Texas