

FROM ROBERT O. SHEARER, PRESIDENT,  
ROCKY MOUNTAIN GOLF COURSE SUPERIN-  
TENDENTS' ASSOCIATION, DENVER, COLO.:

"Regarding reaction of Rocky Mountain Area Golf Course Superintendents to the Regional Service by the Green Section of the USGA, we are getting more benefit now than ever before and we all are really happy about the whole thing.

"I was very much impressed and we feel greatly rewarded by being advised by Charlie Wilson, Representative of the Western Division of the USGA Green Section, during his visit to our Course regarding little tricks and practices that have been developed by member clubs throughout the West. We appreciate the valuable information contained in our Western Turfletter written by Charlie Wilson and printed in Davis, Cal., the location of the Western Division of the USGA Green Section.

"We are all very mindful in subscribing to this valuable service that the USGA operates solely for service to golf and not for profit, otherwise the cost of this service would be absolutely prohibitive to the majority of our golf courses.

"We sincerely hope that all eligible golf clubs will take advantage of this wonderful bargain. We appreciate the value of personalized recommendations made regarding

## TURF MANAGEMENT

The book "Turf Management" sponsored by the United States Golf Association and edited by Prof. H. B. Musser, is a complete and authoritative guide in the practical development of golf-course turfs.

This 354-page volume is available through USGA, 40 East 38th Street, New York 16, N. Y., the USGA Green Section, Plant Industry Station, Beltsville, Md.; the USGA Green Section Western Office, Box 241, Davis, Cal., or the McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y. The cost is \$7.

each course visited. We are also sure that this service will become more effective as time marches on."

FROM J. L. HAINES, GROUNDS SUPERINTENDENT, DENVER COUNTRY CLUB, DENVER, COLO.:

"The boys in the area are getting more good use of the USGA Green Section through these on-the-field inspection tours and recommendations than they have ever gotten from the Green Section before. Charlie Wilson is doing a wonderful job in this area."

## BERMUDA FAIRWAYS AT ARMY NAVY COUNTRY CLUB

By JIM THOMAS and REAR ADMIRAL JOHN S. PHILLIPS  
GOLF-COURSE SUPERINTENDENT AND CHAIRMAN, GREEN COMMITTEE

The summer of 1952 was a disastrous one for turf on many golf-course tees, fairways and greens in the Mid-Atlantic area. The preceding winter and spring had been ideal for the growth of *Poa annua*. However, the picture changed abruptly during June. The weather reversed itself suddenly, with *poa* doing its usual seasonal disappearing act. Many golf courses were left with open surfaces devoid of any grass cover, and summer weeds soon occupied these areas.

During this period, the Army Navy Country Club, in Arlington, Va., found it had an "ace in the hole" on its fairways: namely, that many parts of the grounds abounded in bermudagrass. The original establishment of this grass took place before our time. To all appearances,

the growth has been there a long time, even to the point of being native to the soil. Legend has it that a former green committee chairman used to carry bermudagrass seeds in his pockets while playing and scattered them at every opportunity.

As a team-mate and companion to our "ace," the property is infested heavily with *Poa annua*. That is an ideal combination which, in seasons of normal weather, provides us with a green covering the entire year. The first is a warm season perennial which thrives in very hot weather. The other is a cool-season annual which grows profusely in the cool, moist season of fall, winter and spring.

Many consider *Poa annua* a pest and seek to eradicate it as they would an ob-

noxious weed. Yet in our locale many of us make every effort to live with it. When it is right and in season, it develops a most beautiful sod. It perpetuates volunteer growth by reseeding at any height of cut, yet it is very treacherous and fickle in our usually warm weather (temperatures about 100°F.) and disappears until cool weather arrives. During this interim, bermudagrass can be encouraged to enter and play a prominent role until the arrival of frost. Then our *Poa annua* friend once more steps in to bridge the gap.

When either one of these turfs approaches the end of its active growing season, there is a short transition period, which means that for a while things may not be at their best from the esthetic standpoint. These grasses are heavy feeders. They will tolerate heavy applications of nitrogen. They respond quickly to fertilization. This change of vegetation is usually more noticeable in the Washington, D. C., area in the early summer, but the time lag is of short duration.

As a cover for our sunny tees, bermudagrass has no equal. Bermuda sod is easy to establish and heals quickly. Divot scars are soon covered over, and maintenance problems are minimized. Of necessity, tee surfaces must be large, as no grass can establish a cover without sufficient room to recover or expand. On a heavily played course, it is not only desirable but feasible to have many locations and changes available for tee markers. If free movement of markers is not possible, the surface soon becomes bare, compacted and devoid of grass from heavy traffic and wear.

The introduction of bermudagrass on fairways provides the golfer with a playing turf of superior quality. A dense, tight sod is furnished—one which affords a good lie for almost any type of shot. A player does not find his ball nestled in high grass, as bermudagrass, when fed adequately, will thrive under very close mowing.

There is one point of concern regarding the establishment of bermudagrass

in our region. Around bentgrass putting greens, if not watched closely and controlled, bermudagrass will invade the green and become a pest equal to or worse than an infestation of clover or crabgrass. When this happens, bermudagrass must be eradicated as any other weed. Under such conditions, it carries the definition of a plant out of place.

There are two ways of establishing bermudagrass turf: by seed and by vegetative propagation. The first is the slower method and is not always successful, as many seedling plants will be winter-killed. At our latitude, we cannot be certain that seedlings will be successful. Usually they are not. The second, or vegetative method of planting, is more satisfactory, as we know the selection is winter hardy to begin with. Therefore, although the method is slower by comparison, we are more certain of the establishment of bermudagrass. Late May or early June is an ideal time for us to start this operation.

Portions of tees and fairways at the Army Navy Country Club which have been troublesome because of thin cover, weed infestations or other reasons have been successfully established to bermudagrass through the simple medium of gathering freshly mowed clippings and scattering them evenly over the bare spots. To accomplish the transition from poor turf to that of a solid stand of bermudagrass, we aerate thoroughly, scatter the clippings, topdress lightly, fertilize heavily and water as needed until a stand has been assured. Under our conditions, this transition is realized within a few weeks.

The advantages of bermudagrass for tees and fairways are many-fold, especially in this the so-called "transition zone" where the cool and warm belts meet. In this zone, at certain seasons of the year, climatic conditions favor all of the different kinds of herbage common to the temperate zone. If bermudagrass is fed adequately, it forms a tight, dense sod which is comparatively free of weeds. Its ability to withstand close mowing provides a player with exceptional lies

under conditions of high nitrogen feeding. It takes traffic well, and divot scars are quick to heal, desirable qualities for any hard-wear areas. Even during its dormant season, bermudagrass remains dense, and its off-color is masked by volunteer *Poa annua*.

Bermudagrass is at its peak during the hot summer months, when the cool-season grasses are dormant or dying. The balance of *poa* and bermuda is a natural one, and who are we to fight nature? We live with it and love it! We think our poa-bermudagrass turf is great!

## RATES OF SEEDING TURF GRASSES

By A. M. RADKO

ACTING EASTERN DIRECTOR, USGA GREEN SECTION

There are many factors which contribute to the degree of success attained in establishing a good turf cover from seed. Some of these factors are seedbed preparation, nutrient level of soil, freedom of weeds and weed seeds in seedbed, time of seeding, depth of seeding, water management, fertilizer management, maintenance practices, rate of seeding and grasses or grass mixtures selected.

If all requirements over which we have control are carried out to the letter, we can be reasonably sure of success—if the elements are kind. Too much or too little rain immediately after seeding can alter the outcome greatly. However, seeding at the proper time keeps the odds in our favor. We cannot control the elements, so let us consider those factors over which we have control.

### Seedbed Preparation

Proper seedbed preparation is the very important first step. The seed bed should be prepared with proper ingredients added to place the soil in good physical condition. The degree to which the physical conditioning will be carried out will depend upon the eventual use of the area. Preparation for a putting green would differ greatly from the preparation for a home-lawn seeding. However, the proper proportion of sand, soil and organic matter, thoroughly mixed so as to provide good granulation and aggregation without layering, will do much to provide good air, water, nutrient and root penetration.

Lime, nitrogen, phosphorous and potash also are essential to good seedbed preparation. When preparing a new seedbed,

these nutrients should be mixed thoroughly into the soil so that they will be available to the seedling plants as the plants can use them. Good fertility is necessary to the production of good turf. Although nitrogen is the element which needs to be applied in the largest quantities for good turf, relatively high levels of phosphorous and adequate potash are important also, especially to seedling plants. After the seedling plants have matured, nitrogen is the key element. Proper fertilization is essential to the production of good turf.

Seedbed-soil sterility is desirable also to begin with, in order to eliminate weed competition. Soil sterilization may be accomplished by the use of cyanamid or Dow-fume MC-2 where practical. Another method of reducing the weed population is to prepare the seedbed and allow it to remain idle for a week or two until the weed seeds germinate. At that time a good weed spray will kill all weeds, and generally all that is required to place the bed in order is a light raking. Good planning is essential to either method, so that the timing will be right.

The next logical step is the proper selection of grasses, and use of the proper quantities of each to provide the type of turf desired. There is a wide difference in the number of seeds to a pound. This factor is important in determining the percentage of seed of each species which will be needed in the mixture in order that the turf will contain the desired species in proper proportions. Table I, taken from the USGA's book "TURF MANAGEMENT" by H. B. Musser, shows these differences in numbers of seeds to pound in the more important turf grasses.