

UNITED STATES GOLF ASSOCIATION  
GREEN SECTION  
Southwestern Office



Texas A & M College

COLLEGE STATION, TEXAS

MARVIN H. FERGUSON  
SOUTHWESTERN DIRECTOR  
NATIONAL RESEARCH COORDINATOR

Southwestern Turfletter

BEARD  
COLLECTION

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FERTILIZING BERMUDAGRASS

How much fertilizer does Bermudagrass need to make its best growth? If one observes old fields and poor soils and notes the growth of Bermudagrass he is apt to arrive at the conclusion that Bermudagrass grows on rather poor soils. While Bermudagrass may exist under such conditions, it responds remarkably well to heavy applications of fertilizer, particularly nitrogen. There probably is no other grass that will provide an equivalent response to good treatment. As a matter of fact, if one is to maintain a dense turf, with pleasing color, it is almost necessary to fertilize heavily. He can then be assured of relatively weed-free turf and excellent playing conditions.

Fairways

Studies by the Texas A. and M. College have indicated that fairway turf of Bermudagrass should receive at least eight pounds of nitrogen per 1000 square feet per year. This is equivalent to 320 pounds of nitrogen per acre per year. In terms of sulfate of ammonia, this means the application of 1600 pounds of sulfate of ammonia per acre per year. This amount of fertilizer is not the maximum that Bermuda can use. Observations of fairways where twice this amount of fertilizer has been used have indicated that Bermudagrass will give increasing response even at these very heavy rates of application. It is believed, however, that one must aim for the practical limit rather than the maximum amount that can be used.

A great deal will depend, of course, upon the type of soil with which one is dealing. If the soil is sandy and has a tendency to leach readily, nitrogen will be carried out of the soil in the drainage water. If, on the other hand, one has a rather tight soil where little of the nitrogen is leached away, he may be able to get by with smaller amounts of fertilizer and less frequent applications. It is believed that ordinarily on fairways, Bermudagrass should be fertilized about four times a year. This means that an equivalent of 80 pounds of nitrogen per acre should be put on the turf at each application.

Greens

The amount of fertilizer used on Bermudagrass greens varies a great deal. The minimum application of nitrogen on greens is one pound per 1000 square feet per month. Many superintendents use as much as twice this amount. Again, it will be

necessary to take into consideration the type of soil that exists on the greens. If greens are well-drained so that nitrogen leaches out rapidly, the rates of application must be increased accordingly. It is believed that most users will get better results if they fertilize frequently and at relatively light applications. Many superintendents fertilize once a week; others use fertilizers that become available more slowly and feel that they can fertilize every month or every three weeks. It is believed that small applications generally are better because at no time does the grass reach a very high peak of fertility and at no time does it get too hungry before another application of fertilizer is made.

#### Tees

Tees probably fall somewhere between greens and fairways in their fertilizer requirements. Ordinarily clippings are allowed to fall on tees and these clippings contain a substantial amount of plant food; therefore, the nitrogen is not taken away so rapidly as it is where clippings are removed, as is the case on putting greens. On the other hand, tees are kept mowed considerably closer than fairways on most courses and an attempt is made to keep them very dense. Therefore, they require at least one pound of nitrogen per 1000 square feet per month.

Up to this point only nitrogen for Bermudagrass has been discussed. Bermudagrass requires relatively smaller amounts of phosphorus and potash. It is believed that four applications of fertilizer per year should be made to the turf on fairways and that the first application should be a balanced fertilizer in the ratio of approximately 10-5-5. The subsequent applications should be made with a straight nitrogen material. It is believed that this plan of fertilizing will also be applicable to greens. In the case of greens, however, where smaller applications of fertilizer are made at a time, it probably is necessary to use a phosphorus and potash application consisting of an 0-14-14 or similar grade fertilizer in order to obtain the proper amounts of phosphorus and potash. It is believed that greens should receive at least one pound per 1000 square feet of actual  $P_2O_5$  and  $K_2O$  at the beginning of the season.

With reference to pH of the soil, Bermudagrass will tolerate a rather wide range of alkalinity or acidity; however, like most other plants, Bermudagrass makes its optimum growth at a pH of about 6.5. At this point most of the other nutrients contained in the soil are in a form available to the plant. Studies are being continued in the fertilization of Bermudagrass. The foregoing observations indicate the present status of our knowledge concerning fertilizer requirements of this most important turfgrass for the South.

#### REMEMBER THE TURF CONFERENCES ! !

September	14	--	Field Day - Westwood Country Club	--	St. Louis
October	20-21-22	--	Central Plains Turf Conference	--	Kansas State College
December	6--8	--	Oklahoma Turfgrass Conference	--	Oklahoma A. & M.
December	13-15	--	Texas Turfgrass Conference	--	Texas A. & M.

### ANTS ON THE GOLF COURSE

Ants on a golf course can be very annoying to players and they can also destroy turf. One of the worst offenders in the Southwestern states is the red harvester ant (*Pogonomyrmex barbatus*). The red harvester ant is capable of clearing areas from three to five feet in diameter around the entrance to its nest. This ant inflicts a very painful sting, which causes reddening and swelling of the skin. It is quite belligerent and will get on persons walking through or near the ant colony.

The red harvester ant is a reddish brown color and from 1/4 to 1/2 inch long. There are four forms of the adult: the winged females, the queens, the males, and the workers. The ants seen in large numbers around the colonies are the workers. The ant hill or nest of this species of ant can be recognized easily because it is in the center of a barren, circular area of considerable size. Usually there are pathways one to four inches wide radiating from the central nest. Vegetation is almost entirely cleared from these pathways and sometimes they may extend for two hundred feet into the surrounding vegetation. In smaller nests there usually is one entrance hole in the center of the nest. The main opening is usually 1/4 to 1/2 inch in diameter. The nest of this species of ant is a rather complicated system of tunnels and chambers under the ground. The type of soil has a great deal to do with the form which the underground nest takes.

The golf course superintendent will not be greatly concerned with the agricultural importance of this ant but it does considerable economic damage. It has been estimated that one colony of ants will destroy as much as \$25.00 worth of wheat or alfalfa.

Control of the red harvester ant is most effectively accomplished by the use of insecticidal dusts applied as a band around the nest. Dieldrin is one of the better insecticides for this purpose. A 2% dust spread in a continuous band four to six inches wide and in a circle five to six feet in diameter around the nest will serve to prevent the ants from moving in and out of the nest. As they cross the band they pick up some of the insecticide and take it into the nest with them. About 1/2 pound of dieldrin is sufficient to treat a small colony. Five per cent chlordane dust, applied at approximately the same rate and in the same manner as the dieldrin dust, is also quite effective but has been found to be not so long lasting. Following irrigations new treatments must be made with either of these materials because they are washed away or carried into the soil by the irrigation water. As soon as irrigation has been accomplished another treatment should be made immediately. Fumigants such as carbon disulfide and methyl bromide may also be used, but these are a little more difficult to use than the dusts.

There are many other types of ants that inhabit golf courses, but the others do not do so much damage, nor do they inflict such painful stings as the red harvester ant. More complete information on the control of ants can be obtained by writing to the Superintendent of Documents, Washington 25, D. C., and asking for Farmers Bulletin No. 1668. Another source of information is the Connecticut Agricultural Experiment Station Circular No. 188, published in May 1954.

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Professor James Tyson  
Department of Soil Science  
Michigan State College  
East Lansing, Mich.

  
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