

Southern Fairway Management Methods Outlined

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Since Bermuda grass predominates in the fairway turf of a great proportion of the golf courses in the south from Virginia to the southern-most tip of Florida, any discussion of fairway management such as this, we think, should deal principally with the management of this most versatile and adaptable of all grasses. I think we, in the south, are most fortunate to have a fairway grass which, under proper management, can be made to thrive and produce good fairway turf under so many varied and often adverse conditions. I believe most all good golfers will agree there is no finer fairway turf, either for wood or iron shot play than a pure stand of dense, closely clipped Bermuda. Unfortunately, however, all too often these conditions do not prevail.

There are other grasses of course which have their place in southern fairways under certain conditions. Carpet grass, for instance, prevails on many courses in low-lying areas of heavy, moist soils. St. Augustine grass is often found, and Centepede grass is perhaps the best answer for many of the smaller clubs, which operate on a very small maintenance budget, as this grass, once established, will thrive with less fertilization and care than Bermuda grass. All of these other grasses, however, have their disadvantages and are definitely inferior to well managed Bermuda grass for fairway purposes.

Therefore, we are assuming, in general, that the best fairway management practices are those which will encourage maximum development of Bermuda grass.

Probably the first and most important problem in the establishing and maintenance of good Bermuda fairway turf is fertilization, providing drainage and physical conditions of the soil are satisfactory. Bermuda grass probably responds more quickly and more aggressively to fertilization than any other grass; and insufficient fertilization probably accounts for more poor fairway turf in the south than all other reasons combined.

Nitrogen is usually the main deficiency although, of course, certain amounts of potash and phosphate are needed. More frequent fertilizer applications are re-

quired for the lighter, sandy soils than for clay or heavy loam soils, where less leaching occurs and where natural fertility is greater.

On the better courses in the lower south as much as 200 lbs. of actual nitrogen per acre may be applied each year. This is the equivalent of over 1½ tons of a 6% nitrogen fertilizer.

The fertilizing program on fairways should start in early spring, just before or when the Bermuda grass starts to grow. A second application is usually required for best results in late spring or early summer and a third application six weeks to two months before the normal dormant period starts, in order to provide a good dormant turf for winter play. However, necessary rates of application and time of application will, of course, vary greatly in different sections of the south and under various soil and rainfall conditions. But, on the average, best results are probably obtained by at least 600 to 1,000 lbs. per application per acre of a 6% nitrogen fertilizer.

Nitrogen for Drought Resistance

Recent experiments tend to prove that a heavy application of nitrogen in mid-summer will greatly increase drought resistance of Bermuda turf. Usually one application per year of a complete fertilizer is sufficient unless soil tests continue to show phosphate and potash deficiency. Other applications supplying mainly nitrogen usually suffice. Organic sources of nitrogen, particularly in the light, sandy soils, are usually superior but are not always obtainable under present conditions.

The incorporation of some of the minor elements, such as copper, manganese, zinc and iron have given spectacular results in some instances, particularly in South Florida. The simplest method of determining whether any of these would prove beneficial on your course is to use them in small test strips across representative fairways and observe the results.

Bermuda grass will grow on acid as well as alkaline soil, yet it often responds to lime when soil is more than slightly acid. In general, liming seems to be more bene-

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to Saturday can develop a lot of wrinkles in a player's swing. It is amazing what a little vagrancy will do to even a well-organized golf swing."

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ficial in clay soils than in sandy soils. The beneficial effects, if any, of lime are not always apparent to the eye, but lime often increases drought resistance. Here, again, the best method of determining the need for lime, unless the P.H. value is unusually low, is by test strip applications. In general, if the P.H. is below 5.8 in sandy soils or below 6.2 in clay soils, the chances are lime will be beneficial.

Bermuda Mowing Needs

Fortunately, Bermuda grass will thrive better under continuous close mowing than most grasses—and it must be mowed closely and frequently, particularly during periods of heavy growth, to prevent the development of deep nap and spongy condition. Good Bermuda fairways in lush growth will need to be mowed twice a week, with the mowing unit set practically as low as it will adjust. During periods of drought the height of cut should be raised.

Crab grass is probably the worst weed on most southern fairways. The best control of course, where possible, is the establishment, through fertilization and good management, of a thick enough Bermuda turf early in the spring to crowd out the crab grass seedlings. Failing this, or if crab grass is already established, the best control under most conditions seems to be the use of sodium arsenite. This is applied at the rate of 4 to 6 ounces per 1,000 sq. ft. as a spray; or, in slightly heavier applications as a dust. The soil should always be thoroughly moist to a depth of 3 to 4 inches before application of sodium arsenite. Two or three applications are usually necessary for complete eradication. This treatment should be followed by fertilizer to stimulate quick recovery of the Bermuda grass.

Milarsenite gives equally good results and is recommended to be used at the rate of 500 lbs. per acre for each application.

Sand spur, Dallas grass and several other grass-like weeds are also controlled with sodium arsenite.

2, 4-D has been as much a life-saver in the south as in the north, eliminating to a great degree some of our worst broad-leaved fairway weeds, such as dandelion, buckthorn, lippia, pig weed, pennywort and under some conditions dichondra, or dollar weed. Some injury to Bermuda and other native grasses has occurred with mid-summer applications of 2, 4-D, particularly in the lower south and we believe

it is safer to apply 2, 4-D in the cooler months of mid-spring or early fall.

Bermuda grass, like most grasses, requires proper aeration to thrive and form a deep, drought resistant root system. Any cotton farmer can tell you that the more Bermuda is cultivated, the faster it grows and spreads. Southern greenkeepers have generally followed the practice of thoroughly renovating and cultivating their fairways in early spring, using a straight disc harrow or rotary hoe cultivator. However, these tools must be used with care and when the soil conditions are just right or playing conditions may be bad for a period of several weeks after the renovation. The new West Point aerifier should prove to be a far better implement for this purpose since it accomplishes the desired aeration and cultivation without materially disturbing good playing conditions. Wherever it has been used so far, gratifying results have been reported. This machine should certainly prove invaluable in Bermuda fairway management, particularly on the hard, red clay soils so prevalent in the mid-South and the very fine grained sandy soils of the Coast. Of course when poor aeration is due to poor drainage, then tiling, ditching, incorporation of coarser materials, or change of grade is the only satisfactory solution.

A great majority of southern courses are without adequate facilities for fairway watering—yet, when good management and adequate fertilization is practiced good Bermuda fairway turf can and is being maintained without artificial watering. However, fairway watering is certainly beneficial during long periods of drought anywhere, and on some extremely sandy courses along the Coastal Plain and in Florida, artificial watering at times is practically a necessity. However, a good fairway watering system is not always an unmixed blessing and must be used judiciously, for over-watering will often cause the predominance of coarser, less desirable grasses such as carpet grass and St. Augustine grass. Over-watering may also result in a too springy, soft, shallow-rooted and weedy turf. In cases where greens superintendents may have to choose between water and adequate amounts of fertilizers because of their budgets, the wise choice in most cases would be in favor of the fertilizer.

Pest and Disease Problems

Fortunately, Bermuda grass is not subject to many diseases. Leaf spot is the worst one and this usually attacks seriously only in the latter part of the growing season and results only in discoloration and arrested growth and, under good fairway management, very seldom permanently damages the turf to any extent. Several

leaf spot-resistant Bermuda strains have been developed at Tifton, Ga.

The mole cricket is, by far, the worst pest in fairways throughout the lower south. The best control of this pest has been the use of arsenate of lead, applied every three to four years at the rate of approximately 350 lbs. per acre; but, at the current price, lead arsenate is impractical on many courses as far as entire fairway applications are concerned. The use of poison bait provides some control, but applications must be constantly repeated, as reinfestation occurs from surrounding areas.

The new chemical, chlordane, shows great promise and should be tried out this coming season by every greenkeeper who has heavy mole cricket infestation. Initial experiments in Florida have proved highly satisfactory. Two applications of chlordane at ten-day intervals at the rate of 1 to 2 lbs. per acre are said to have killed all stages of the mole cricket. Chlordane can be used either as a spray or dust, and also controls ants, chinch-bugs and fall army worms. It remains to be proven how long the residual effect of chlordane will remain in the soil, but it appears from the first experiments that at least some killing power remained six weeks to two months after application. However, with an efficient fairway sprayer, chlordane applications will be so much cheaper than former control methods, that this chemical seems to be the long-sought answer to the mole cricket problem—let's hope so anyway.

Most southern courses, except those in lower Florida, depend upon playing on dormant Bermuda fairways during the winter months. If a good, dense turf has been established during the late summer and fall growing months the dormant turf affords fairly good playing conditions but, of course, a brown Bermuda fairway is not very pretty to look at and there is no chance for divot marks to heal until the grass grows in the spring.

Italian rye grass is often seeded in the fairways at the larger clubs—rates of seeding varies from 200 to as high as 600 lbs. per acre. Seed is usually applied and matted in after scarifying with a rotary hoe cultivator or aerifier. Nitrogenous fertilizer is applied after the grass has been up for three weeks or so.

In our particular section, poa annua comes into our fairways naturally after cool weather sets in and provides a green effect at least, to the fairways, from December until the Bermuda grass starts to grow in early spring. Under our particular conditions and management, the poa annua has not spread into the greens to any extent. Farther north it might become a pest in the greens if intentionally seeded into the fairways.

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