We try never to overfeed our greens. We determine the need of fertilizer by the way the ball acts on the putting green. If the turf loses its nap and the ball is hard to control on a long putt we make an application of fertilizer. During the past season all the feeding we did was to top-dress the greens once and give them two applications of sea-fowl guano at the rate of 40 to 50 pounds to a green.

We believe the most important features in maintaining our putting greens have been good surface drainage, not overfeeding, good top-dressing for providing a good topsoil, and keeping them as free as possible from worms. Drainage we consider exceedingly important. Most of our greens do not need subdrainage; they are either built up and have perfect surface drainage, or are trapped in such manner that the traps serve both as drains and hazards. Our greens never winterkill or become water-logged under any conditions.

Fertilizing Putting Greens at Brookline

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Our putting greens are bent grass, 19 having been seeded with mixed bent and 9 having been planted with the Virginia strain of creeping bent stolons. All have considerable annual bluegrass (*Poa annua*). We do not intentionally seed with annual bluegrass for we do not like to have it in our greens, but it seems to thrive all through this section of the country and has come in of its own accord and is especially troublesome in our new greens. The subsoil of our greens is mostly clay. The surface layer is a heavy loam, which is being steadily improved by the sand which we mix into our compost. Three of the greens are drained with a herringbone system of tiling 10 to 12 inches below the surface; all the other greens have only surface drainage.

The greens are not covered during winter, except for the brush which we scatter around the edges of certain ones, mostly on the north and northwest sides of the green. The brush is allowed to remain as late as possible in the spring. It is surprising how beneficial a windbreak of this kind appears to be, as after the snow has gone in early spring the turf that has been thus protected responds as if it had been fertilized.

Our first spring treatment is top-dressing. This is done after the grass has started to grow, care being taken not to apply the top-dressing too soon. The time depends entirely on weather conditions, but it is generally around the last of April or first of May. The top-dressing material is compost which has been prepared the year before and into which sulphate of ammonia has been mixed, in the loam shed, just before the material is applied. One cubic yard of compost is used on a green of average size (about 6,200 square feet). Sufficient sulphate of ammonia is used to give an application of 5 pounds to 1,000 square feet. The material is spread from wheelbarrows, by hand. The spreading is started at the side of the green opposite from the pile of compost left by the truck on the edge of the green. We try to select a good drying day on which to make the application, also a day when the play is light. The top-dressing is then worked into the turf with steel mats, lightly swept with birch brooms, and thoroughly watered.

A second top-dressing is applied after the turf has made some growth, which for us is about the second week in June. The material is compost into which poultry manure has been mixed, in the loam shed, just before use. One and one-half yards of material, containing about 70 pounds of poultry manure, is applied to a green of average size.

During the warm months that follow we have no set rule of procedure. It may be 3 weeks or 7 weeks before another top-dressing is applied. If any of the greens look below standard we try to stimulate their growth to equal the other greens. The vigor of a green is determined more by the color of its turf than the quantity of clippings obtained from it, as the latter depends a good deal on weather conditions. During the warm weather we would rather not use a quick-acting fertilizer unless forced to do so. In such cases a solution of sulphate of ammonia applied with a power sprayer at the rate of 3 pounds to 1,000 square feet gives quick results. However we have known this treatment to fail. When this occurs we have at times obtained good results from an application of Scotch soot, while two of our greens which have occasionally troubled us have been helped by an application of lime. We have no set rule to follow in such cases, except to test the soil and do what seems to be necessary to keep it in a slightly acid condition. During warm weather we have used only compost as a filler for the grass roots. The latter part of September another application of sulphate of ammonia is made. This seems to be all that is required to keep the turf in good condition for the balance of the year, except that we have in late fall applied bone meal, in sand, when the ground is frozen. In general, we try to be on the light side in the application of fertilizers and to force the turf as little as possible in midsummer.

We are obliged to purchase all our loam for compost. We keep a two years' supply on hand, and this permits us to prepare good compost by working into the loam grass clippings, green material from the rough, and leaves which have been kept in piles. This mixture is turned every four or five months or spread out in the open and turned by plow, the latter process being preferable.

While it is of course necessary in caring for putting greens to formulate a fertilization program of some kind, it is not always advisable to follow it to the letter. Of equal importance is a diligent observation of conditions as they develop on the course and the adjusting of one's program to existing conditions. A program that might be successful in one location might be disastrous in another.

Several years ago the United States Department of Agriculture distributed a new variety of sugar cane developed from their investigations at Canal Point, Florida. Agricultural scientists are enthused over the development of this variety, known as C. P. 807, which has shown an increase in yield of nearly a ton of sugar an acre over the best of the competing varieties. Considerable loss from diseases almost wrecked the sugar industry in Louisiana prior to 1926, at which time the United States Department of Agriculture introduced from Japan the P. O. J. variety, which was more resistant to disease. The new C. P. 807 variety was bred at the Department field station at Canal Point, Florida, which was established in 1920 by the Bureau of Plant Industry.