## QUESTIONS AND ANSWERS

All questions sent to the Green Section will be answered in a letter to the writer as promptly as possible. The more interesting of these questions, with concise answers, will appear in this column. If your experience leads you to disagree with any answer given in this column, it is your privilege and duty to write to the Green Section.

While most of the answers are of general application, please bear in mind that each recommendation is intended specifically for the locality designated at the end of the question.

**Early spring cutting and rolling**—How early in the spring may we start cutting our putting greens? Is it safe to start cutting just as soon as the grass takes on a little color and life? Would it be injurious to the greens if we should start cutting them and then have a severe freeze follow the cutting?

ANSWER.—Our experience indicates that no injury to grass is likely to result from mowing any time after it starts to grow in the spring. Even though a freeze occur after mowing there is no indication that grass that has been cut is more subject to injury than grass that has not been cut. We frequently find greenkeepers who feel that grass should be allowed to make some growth in the fall for winter protection, but our experience indicates that grass may be mowed as long as it is making growth without suffering any more seriously than grass that is allowed to go into the winter with quite a little growth. In the northern states spring usually finds the turf very uneven as the result of heaving. Before mowing, this condition should be remedied by rolling, otherwise the turf is likely to be injured in high spots by scalping. Rolling should take place soon after the frost is out of the ground and while the soil is still well supplied with moisture but not so saturated that puddling is likely to result.

**Value and use of humus.**—We can buy commercial humus in carload lots for $7.50 a ton at point of shipment. What value would it possess as a substitute for compost in top-dressing putting greens? (Kentucky.)

ANSWER.—Humus can replace compost to only a limited extent. It is pure organic matter in various degrees of decomposition. Some kinds of humus, if spread on turf, would dry out and remain on the surface as an inert covering of woody material much resembling chips or bark. It is slow to break down, and is of most value when mixed with soil, since it can greatly improve the physical structure of all but peaty soils. Compost, on the other hand, is soil in which considerable humus has been incorporated, and sometimes also other fertilizing materials. In using humus in the compost pile, first a layer of soil is laid down, then a layer of humus, then a layer of manure. This operation is repeated until a pile of layers several feet high is built. While constructing the pile it is advisable to throw lime on the humus at the rate of 25 pounds of lime to a ton of humus. If manure is scarce, the layers of manure may be comparatively thin. Fresh manure is of more value for this purpose than rotted manure, since the former contains various micro-organisms which assist in decomposing the humus and releasing plant food, and it will heat and decompose more rapidly than rotted manure. Another use for

humus is in the preparation of good top soil. An area of rough or waste land on the course may be top-dressed with large quantities of humus. Sharp sand may be added if the soil should require it. Fresh manure should then be applied at the rate of several tons to the acre. The area should then be plowed and disked. If the area is then cultivated so as to keep down weeds it will provide a fertile top soil of good mechanical structure. In our opinion, a price of $7.50 a ton at point of shipment is out of proportion to the value of any kind of commercial humus. We feel certain that fine garden loam could be purchased much more cheaply, and it would possess fully as much value provided it were of an open, friable texture. Heavy clay soils can be broken down by the incorporation of strawy manure, which can be procured more cheaply than humus and which is of more value. Also light sandy soils can be improved by humus in the form of manure, which can probably be obtained at a lower price than that which has been quoted to you on commercial humus.

**A "universally complete fertilizer."**—Would you recommend the fertilizer mentioned on the enclosed advertisement as one of the best and most complete grass foods on the market today for use on putting greens? Does the chemical analysis stated indicate sufficient value to warrant its use in preference to some other fertilizer at the price quoted? (New Hampshire.)

ANSWER.—We can not recommend the fertilizer to which you refer as "one of the best and most complete grass foods on the market today." It is unquestionably a good fertilizer for grass, but neither its chemical analysis nor its performance on turf will support many of the claims made for it. The fertilizer industry today is able to duplicate any mixture suggested, but that industry has yet to find a fertilizer that is best for any one plant on all soils. There is such variation in soils that any manufacturer who gives an honest opinion as to the much-desired "ideal fertilizer" will admit that any combination of plant foods that is noticeably successful when used on one type of soil may be far from effective on another type. We suggest that before purchasing fertilizers you consult a reputable local dealer as to prices he can quote you on a mixture containing the same combination of plant foods. You will doubtless find some helpful information in the June, 1928, number of the Bulletin, and particularly in the article entitled "The Fertilizer and the Bag," appearing on page 113. On the preceding page of that Bulletin you will find a table containing many data on the point you bring up. In that table no allowance was made for prices, since these vary greatly in different places, due to freight rates and other local factors.

**Controlling weeds by fertilizing turf.**—We have been liming our fairways for years and as a result have had a great deal of plantain. What treatment would you recommend to control this weed? (New York.)

ANSWER.—Lime alone usually does not improve old turf which has had no other treatment. Lime acts as a corrective agent rather than a fertilizer and under some conditions is decidedly beneficial. Unless other fertilizers are used which contain abundant nitrogen, grass will probably not improve noticeably on your fairway. If you feed the grass properly, you will no doubt find that the plantain will be largely crowded out.

**"All that I have accomplished, or expect, or hope to accomplish, has been and will be by that plodding, patient, persevering process of accretion which builds the ant-heap—particle by particle, thought by thought, fact by fact."**

—ELIHU BURRITT.