

dition of fairways is just as important, and few clubs have perfect ones.

This brings to the front problems which in most cases have been unsolved, such as the best methods of preparing, fertilizing and seeding various soils in different degrees of climate; time of application of the fertilizers, and their rotation; best use of water, particularly in view of the sprinkling systems which many clubs have installed; best height to cut, control of weeds, particularly clover which too great use of water promotes; the renovation of poor, weedy turf; the perpetuation of good Bermuda grass; and the treatment of brown-patch, concerning which we have learned much in the past two years.

A systematic study and experimentation is necessary to enable us to solve and successfully meet these problems. In all of

them the greenkeeper can be of the greatest assistance and in our combined efforts, success will be finally attained.

Midwest Garden Continued

The USGA regrets the necessity of the strictest economy which will materially curtail the activities of the Green Section, but I am glad to tell you that it has decided to continue the midwest turf garden near Chicago in the interest of the many clubs in this district and adjacent states.

Each year we are getting closer and closer together in our mutual efforts and we like to think you are a part of us in 6 of your members being on the Advisory Committee of our Green Section. As I said in my address two years ago at your Columbus Convention, only in a hearty and cordial cooperation among us all can the best results be obtained.

Grass Growth Factors That Control Cutting Practices

By C. M. HARRISON*

Among the problems confronting the greenkeeper today is the problem of cutting. What responses are made by the grass plant to close and frequent removal of the green leaf blades?

The life of a plant is probably more dependent on the proper functioning of the part that is above ground than on that of the part that is below. Roots serve a plant primarily in absorbing water and nutrient material from the soil; they also serve as a storage place and as a means of anchorage. The leafy portion, on the other hand, serves mainly as a factory in which the carbon dioxide of the air is changed into carbohydrates (starches and sugars).

The chief function of the leaves is the combining of carbon dioxide with water, which is absorbed by the roots. The green parts of plants contain a certain green pigment called chlorophyll which is necessary to this process, and only in its presence can the plant make carbohydrates. The whole process of putting together the carbon dioxide and water is called photosynthesis.

Several factors influence the rate at which this manufacturing process will go on. The amount and intensity of sunlight has a marked influence. In most plants,

the process is probably checked when temperatures fall below freezing or rise above 90° F. Given some green leaves to serve as a factory, sufficient water absorbed by the roots, an available supply of carbon dioxide, light, and a proper temperature, the synthesizing process will go on.

Close Cutting Retards Grass

The products of the process—the carbohydrates—are very necessary to the plant in building new leaves and roots, and in keeping alive the parts that already exist. The more green leaf area there is exposed to the light, the larger the factory, and the more food can be manufactured. Whether the efficiency of the factory as it enlarges remains the same as when it was small is not definitely known, but usually as the leaf area exposed to light becomes larger, more food is manufactured. As the amount of food increases, more is available either to increase the size of the plant, both top and bottom, or to be stored for use when the synthesizing process is checked.

Partial or complete removal of the top or green part of the plant seriously affects the amount of food it can manufacture. The shorter the grass is cut, the more of the factory is removed, unless the plant responds by flattening out on the ground in

*Digest of Greens Convention address.

such a way as to produce leaves so close to the ground that the mower blades do not catch them. Certain grasses, notably the bents, exhibit this response and are consequently valuable when short cutting practices are the rule.

Certain other grasses, however, such as Kentucky bluegrass, usually continue their upright habit of growth and may be completely defoliated by severe and frequent cutting. As the amount of defoliation increases, the food manufactured by the remaining top decreases, and consequently less food is available to build new plant parts. When cutting practices which virtually defoliate the plant at each cutting date are maintained, any food previously stored is gradually used up in building new parts and in keeping the plant alive, and when these cutting practices are coupled with adverse growing conditions, the plants recover very slowly and sometimes not at all. Cutting of the top of the plant results, then, not only in lessening the amount of new top growth produced after cutting, but also in decreasing the production of roots, and even in extreme cases in actually killing the underground parts of the plant.

With lantern slides Mr. Harrison showed effects of cutting on the subsequent growth of grass plants under more or less con-

trolled conditions. It is possible by controlling the amount of nitrogen supplied a plant, the temperature under which it is growing and the amount of cutting of the tops to produce results which he exhibited by means of the slides. Most of these results were obtained while working in the greenhouse of the University of Chicago on funds supplied by the Green Section.

French Lick's Second Midwest Tourney April 7-9

SECOND ANNUAL Midwest Tournament will be played at French Lick Springs, Ind., April 7, 8 and 9. Events will be run in scratch and handicap classes and for men and women.

The inaugural of the event drew a good field last year. Its success established it as a welcome competitive feature of the central states amateur calendar.

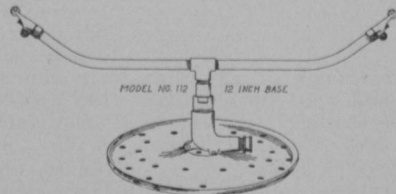
Special combination rates covering transportation and accommodations at the French Lick Springs hotel, have been arranged at a very moderate figure.

Thomas Heneage, 120 S. La Salle st., Chicago, is director of the event and will supply complete details to prospective entrants.

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